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NAVAL FACILITIES ENGINEERING COMMAND
HISTORY
1980

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COMMAND HISTORY

NAVAL FACILITIES ENGINEERING COMMAND

1980

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CONTENTS

Chapter		Page
	Key Personnel	v
I	Mission	1
II	Organization and Administration	5
III	Research and Development	21
IV	Planning and Real Estate	29
V	Military Construction Programming	39
VI	Engineering and Design	55
VII	Construction	81
VIII	Facilities Management	91
IX	Family Housing	105
X	Military Readiness	117
Appendix		
A	Naval Construction Force Units	A-1

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CHAPTER 1

MISSION

Historically, the mission of Naval Facilities Engineering Command has been the planning, design, and construction of the naval shore establishment and, in part, its upkeep and repair. At all times, the mission has been directed toward the provision of facilities ashore for the proper basing, maintenance, and repair of the United States Fleet.

This mission to provide technical support to the United States naval operating forces was limited in nature. In the areas of planning, design, engineering, construction, maintenance, and management, the Command's mission was exclusively operational. Because of the great size and complexity of the naval shore establishment, the Command's responsibility differed substantially in the separate elements of its mission. In some parts of the mission, the Command possessed the responsibility to administer or manage a program directly, often throughout the shore establishment. In later years, this became known as "management responsibility." In other instances, responsibility was limited to advice, or as it came to be termed, "technical direction." In addition, circumstances have limited some responsibilities of the Command to particular locations or to specific periods of time.

Change also had a significant impact on the mission of the Naval Facilities Engineering Command. Over the 138-year history of the Command, the mission underwent steady development and change. New duties were added and old ones deleted; nearly all were in some measure altered. Organizational adjustments within the Navy, technological developments, and the Nation's role in world affairs were the great causative agents of such change.

During 1980, the mission of the Naval Facilities Engineering Command consisted of responsibilities assigned to it first by the Secretary of the Navy and later by the Chief of Naval Material.

MISSION CHARTER

General Duties and Responsibilities

The mission responsibilities of the Naval Facilities Engineering Command are contained in NAVMAT Instruction 5460.2A of 28 July 1975. The charter is composed of two parts, the first pertaining to those responsibilities relating to all systems commands and the second pertaining to the particular responsibilities of the Naval Facilities Engineering Command. The general duties and responsibilities enumerated in the charter specified that the Naval Facilities Engineering Command should provide support to the Chief of Naval Operations, the operating forces of the Navy, the Marine Corps, other components of the Naval Material Command, and other offices and organizations with regard to shore facilities and related engineering material and equipment. Except as otherwise provided by the Chief of Naval Material, the Commander of the Naval Facilities Engineering Command was responsible for the following:

1. Performing appropriate material support functions with respect to:

a. Shore facilities, fixed surface and sub-surface ocean structures, floating cranes, amphibious pontoon equipment, fleet moorings, and lift docks;

b. Utilities, including mobile utility support equipment;

c. Mobile ground equipment including construction, transportation (including automotive and railway), fire fighting, public works maintenance, and weight-handling equipment, except that of the Marine Corps and such equipment as is assigned to another command or office;

d. Materials and appliances for defense ashore against chemical, biological, and radiological warfare, except instruments for detection and measurement of radioactivity;

e. Materials and equipment for advanced base and tactical support functional components, except that assigned to another command, bureau, or office; and

f. Tools, equipment and techniques required for construction and maintenance of fixed surface and sub-surface ocean structures.

2. Performing technical support to Command by:

a. Performing military installation planning and civil engineering, shore activity project planning, master planning, base development planning for contingencies, and analysis of systems, types and categories of installations and facilities;

b. Formulating and preparing annual and other military construction programs, based on inputs from the major claimants, for the consideration of the Shore Facilities Planning Board; and

c. Assisting the Chief of Naval Operations in the presentation and support of military construction programs and maintenance and operations programs to higher authority and the Congress, in cooperation with other commands, as appropriate.

3. Providing architectural and engineering design and construction of Navy shore facilities and fixed surface and sub-surface ocean structures.

4. Providing technical and managerial advice and assistance regarding:

a. Facilities minor construction and major repair projects; and

b. Facilities fire protection engineering and fire fighting.

5. Providing technical and managerial advice and assistance regarding in-house or contract performance of:

a. Maintenance of grounds, buildings and structures (Class I and Class II property) and related services assigned;

b. Operation and maintenance of automotive, railway, weight-handling and construction equipment;

c. Operation and Maintenance of utilities;

d. Development and direction of a comprehensive Shore Facilities Energy Program;

e. Development and direction of a comprehensive Environmental Quality Program; and

f. Other related service functions.

6. Programming, planning, design, construction, acquisition and disposal of family housing and, except at Marine Corps activities, managing, operating, maintaining, and utilizing family housing.

7. Inspecting and approving design and construction of items, provided at Government expense, at privately operated establishments that would constitute public works or public utilities if constructed at a naval shore activity.

8. Determining and authorizing the rates of sale of utility services to private parties, other government agencies, and welfare activities within the Department of the Navy.

9. Planning, designing, constructing, and acquiring public utilities for naval shore activities.

10. Acquiring and disposing of real property; managing excess real property; outgranting, maintaining inventory and records, and (except for the Marine Corps), in leasing of real estate for the Department of the Navy.

11. Managing the Navy's Natural Resources Conservation and Management Program, including developing programs and procedures, publishing standards and technical data, and coordinating and providing technical assistance for natural resources management, within policies established by higher authority.

12. Administering the programs for assigned collateral equipment for specified facilities, including all personnel support facilities, for naval shore activities, except for Marine Corps activities.

13. Providing program direction, engineering and technical services for the development, acquisition and safe operation of nuclear shore power plants and radioisotope power generators for Navy application.

14. Administering and coordinating operational matters relative to the DOD Mobile Electric Power Project within the Department of the Navy (less the Marine Corps and excluding aircraft support mobile electric power).

15. Coordinating and providing guidance for Disaster Preparedness of the Naval Shore establishment.

16. Providing technical advice to the Chief of Naval Operations on matters relating to the Naval Construction Force, providing applicable material and funding support for this Force, and developing and maintaining, in coordination with other commands, bureaus and offices, the Naval Construction Force Table of Allowances.

17. Sponsoring and administering the facility air-conditioning program for Navy shore activities.

18. Coordinating and providing guidance and systems integration for the Navy Advanced Base Functional Component System.

19. Providing technical direction and ensuring safe utilization of sources of ionizing radiation, as assigned by higher authority.

Administrative and Technical Support and Guidance

In addition to providing other technical support and guidance as appropriate in connection with the responsibilities set forth above, the Commander, Naval Facilities Engineering Command, shall be responsible for the development and maintenance of the Navy Facilities System as an integrated and comprehensive entity, combining into one Navy-wide facilities system the functions and procedures necessary to ensure integrated facility support in planning, programming, and execution of Naval missions.

CHAPTER II

ORGANIZATION AND ADMINISTRATION

During 1980, there were several changes in the Command's organization and functions. First, the NAVFAC charter was revised to include responsibility for developing and administering a comprehensive Shore Facilities Energy Program and an Environmental Quality Program. Secondly, the Navy Nuclear Power Unit and the Naval Environmental Support Office merged into a new organization called the Naval Energy and Environmental Support Activity.[1] Its mission was to provide environmental protection and energy conservation support to naval commands. At NAVFAC headquarters, the staff of the Assistant Commander for Construction (Code 05) was reorganized to distribute the workload in a more equitable manner.

During 1980, there were three significant changes involving officers-in-charge of construction. The Command established the Office of the Officer in Charge of Construction, Diego Garcia, as an official shore activity under the authority of the Pacific Division. The new office would administer construction, architectural, and engineering contracts on the island of Diego Garcia for the Navy, other branches of the military, and civilian federal agencies. The title of the Officer in Charge of Construction, Madrid, was also changed to the Officer in Charge of Construction, Mediterranean. This name reflected the Navy's increased responsibilities as the DOD construction agent in the Mediterranean area.[2] Lastly, the Command moved the Officer in Charge of Construction, Trident, from Bremerton, Washington, to Kings Bay, Georgia, in order to administer planning and construction for the Atlantic Coast Trident base.

PERSONNEL

Military

In 1980, the active-duty Seabee force increased to 11, 291, a rise of 12 percent. This growth resulted primarily from higher recruiting quotas. In addition, comparatively few first-enlistment Seabees reached the end of their obligated service because of a change from four to five-year enlistment periods.

In recognition of the higher Seabee recruitment levels approved for 1980 and subsequent years, the Chief of Civil Engineers initiated a special personnel plan for Naval Mobile Construction Battalions which would increase the non-rated strength of each battalion from 129 to approximately 290 individuals. The new plan would give new Seabees a greater opportunity to sharpen

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[1]Prior to the merger, the Naval Environmental Support Office was a department of the Naval Construction Battalion Center at Port Hueneme, California; and the Naval Nuclear Power Unit was a tenant activity on the same base. There is more information about this merger in the Energy Program section of chapter VIII.

[2]As the DOD "construction agent" in the Mediterranean, the Command administers all Department of Defense construction in that geographical area.

their skills through battalion projects. The plan was designed to make first-enlistment Seabees more enthusiastic about their jobs and induce them to stay in the Navy.[3]

Civilian

Position Management and Classification: The Naval Material Command approved NAVFAC's position-management and position-classification instruction. The new instruction required that Senior Executive Service and Ment Pay System members establish specific position classification and position management goals. It also delegated the authority to classify positions in the Federal Wage System, and in grades GS-1 through GS-15, to the Commanding Officers of NAVFAC's field activities. Prior to this institution of local control, high grades had to be approved by headquarters and the actual classification was done by the Naval Civilian Personnel Command.

Merit Pay System: The Civil Service Reform Act of 1978 changed the pay system for supervisory employees in grade levels GS-13 through GS-15. Under the new rules, these managers no longer received regular pay raises for length of government service, nor were they eligible for the same cost-of-living salary increases that Congress granted non-managerial white-collar employees. Instead, these federal managers were guaranteed only half the annual cost-of-living increases; and any additional raises would be based on their supervisors' evaluations of their job performance. The object of the reform was to improve the performance of management personnel by giving them a financial incentive to do their jobs well.

The Command implemented the new system in fiscal year 1981, and the Secretary of the Navy approved the recommended merit pay units. These units were composed of the affected management personnel, who would compete against each other for raises. The Command attempted to structure the units so that the pay-for-performance aspects of the Civil Service Reform Act would work. Because the Command's units were small, the merit pay reviewing officers could easily monitor the performance of members of their groups.[4]

Employee Development and Training: The Command's second biennial training conference took place in December 1980. Representatives from headquarters and 20 field activities attended. The participants adopted several recommendations that supported an active training program in all divisions of the Command.

NAVFAC Instruction 12412.1, dated October 1980, set forth the policies governing NAVFAC's Executive Management Development Program for civilian personnel. This program was established to furnish training to NAVFAC employees who had demonstrated managerial potential. It offered them a combination of

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[3]Previously, a large percentage of newly-trained Seabees were initially assigned to base staffs instead of to construction battalions. As a result of this policy, these Seabees did not have the opportunity to hone their newly-acquired skills in the atmosphere of an operational military unit. This led to both training and morale problems.

[4]"Merit pay reviewing officers" were high-level managers, both military officers and super-grade civilians, who evaluated the performance of the GS-13 through GS-15 supervisors.

classroom instruction and on-the-job training at headquarters and at various engineering field divisions. The Command issued its first merit-training announcement in December for 20 target positions.

The Public Works Center Superintendent Development Program also became operational in 1980. This program selected civilian employees for training that would prepare them for management positions at public works centers. Ten individuals began the course of study during the first year.

Professional Development Center: An important facet of the Command's training program was the Professional Development Center. Founded in 1964, its purpose was to seek out individuals with managerial and technical talent and give them the training they required to make full use of their potential. Most of the interns had engineering degrees and were in entry-level positions with the Command. The Professional Development Center admitted 86 new interns during 1980, and 77 others completed their training and were placed in GS-11 positions. At the end of December there were 158 interns in the program. About 49 percent of these individuals were minorities and women, a fact which demonstrated the program's commitment to affirmative action.

In its search for engineering talent, the Command continued to experience stiff competition from the private sector. This problem was exacerbated by the fact that the federal government paid its engineers from $2,000 to $4,000 less a year than most engineers employed in private industry. The Office of Personnel Management increased its special salary rates for engineers at the GS-9 level and instituted higher salary rates for GS-11 engineers in an attempt to improve the government's ability to recruit new talent.[5] Although the Command continued to experience recruitment problems, this salary increase did prevent the wage disparity from getting worse.

Documentation: During 1980 the Command continued its efforts to develop an efficient telecommunicatable word-processing equipment system. Although the procurement of new word-processing equipment went forward, it was recognized that such sophisticated equipment would serve the Command well only if it was used properly. Accordingly, the Command undertook several initiatives in this area, including a revised instruction on word processing, the establishment of a word-processing-equipment steering committee, and the development of a word-processing training program.

THE NAVY FACILITIES SYSTEM

Distributed Data Processing for the Engineering Field Divisions

The Engineering Field Division Management Information System (EFDMIS) is a collection of computerized data subsystems designed to store information useful to the managers of the various engineering field divisions, the independent officers in charge of construction, headquarters personnel, and higher government authorities. It includes data on program management, on financial management, and on the design and construction of facilities.

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[5]The special salary rates for GS-9 and GS-11 engineers mean that the government pays them more than other professional and technical employees with similar levels of skill and experience.

During the 1970's, the Command appointed several study groups to evaluate the Navy Facilities System.[6] These groups concluded that EFDMIS was not working very efficiently, and they recommended the use of minicomputers to decentralize it. In 1980, the EFDMIS was a highly integrated system which was centrally processed at the Command's Facilities Systems Office in Port Hueneme, California (FACSO). The existing system adequately provided information for compliance with statutory and fiscal responsibilities, but its design made it incapable of furnishing timely data to the hundreds of users at various engineering field divisions around the country. First, the formats used to enter data into the machine required extensive lead times to develop and modify. Moreover, the system processed the data in batches, which meant that there was a lag between the time the data reached FACSO and the date it was processed and available for use. To complicate matters, a similar batch process was employed to correct any errors in the original data.

In addition, data necessary for the administration of a local activity had to be transmitted to the Facilities Systems Office for processing before it was returned to the pertinent activity for use. This process was not completed by the central computer immediately after reception because certain reporting requirements of Command headquarters and higher naval authorities took priority. Furthermore, the central processing of large amounts of highly detailed data needed for local applications compounded the serious overloading problems that existed at the Facilities Systems Office.

The Command therefore developed a series of remedies for these difficulties: expansion of the processing capabilities at the Facilities Systems Office, an increase in the role of remote job entry from the engineering field divisions, and a provision for additional processing capabilities at the EFD's. In order to implement these remedies, the Command took the following steps:

Improving the Capabilities of the Central Computer: The Command installed a dynamic address translation facility (DAT box), a device which would allow FACSO to convert the central computer to IBM's virtual operating system. The conversion was necessitated by IBM's withdrawal of support for the current operating systems. The Facilities Systems Office expected that this change would yield up to a 20 percent increase in the amount of information that could be processed in a given period of time.

Experience with the new system indicated, however, that while more jobs could be processed simultaneously, some jobs took longer to complete. Overall, the new operating system has been more reliable and beneficial than the old system.

Replacement of Remote Job-Entry Terminals: In 1980, the Command began making plans for replacement of the current array of remote job-entry terminals at the engineering field divisions.

The replacement equipment included several optional features that would enhance the data-processing capabilities of the engineering field divisions. One was equipment that would permit the EFD's to communicate simultaneously

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[6]The Navy Facilities System includes all computerized functions related to naval facilities.

with FACSO and with commercial time-sharing computers that handled the Computer-Aided Design.[7] The specification also called for equipment that was capable of storing some information locally and for a programming capability that would enable it to produce reports for the EFD's.

The computer systems managers viewed both the conversion to the virtual operating system, and the upgrading of remote job-entry terminals to remote processing systems, as short-range measures that would increase the efficiency of the Engineering Field Division Management Information System. Increased processing capacity at the central computing office might permit more frequent updating of information, and more sophisticated terminal equipment might alleviate the crush of work at peak processing periods and provide essential reports more quickly than the central computer could produce them. However, these remedies alone were inadequate to solve the EFDMIS's timeliness problems; they merely made the problems less severe.

Improvement of Data-Processing Capabilities at the Engineering Field Divisions: The rationale behind NAVFAC's automated information policy was that an effective information system had to satisfy the needs of all its users. In 1980, neither the EFDMIS planners nor the users believed that the existing system met this goal. The principal reasons for their judgement was:

a. The entire EFDMIS community was dependent on one machine--the central computer at the Facilities Systems Office. When this computer or any of its peripheral components or communications equipment malfunctioned, the users in the field could not obtain the basic information they needed to accomplish their daily business.

b. The information in the central data base was highly structured. Individual engineering field divisions could not add data for local management requirements that were unique to their own operations.

c. A system that operated through batch listings did not provide the level of currency necessary for the principal users, the lower-level managers at the engineering field divisions, who needed timely information to make their operations efficient.

The challenge, therefore, was to design an automated information system which not only met the demands of higher management but also met the needs of staff members at the engineering field divisions, who were involved daily in directing the construction of buildings, airfields, and dry docks. An adequate system had to transform data into information quickly and make the information available to users rapidly.

Project Smart: After extensive study and analysis, the Command decided that a distributed data-processing system, achieved through the installation of minicomputers at all engineering field divisions, would offer the best solution to its information needs. The system would be designed to retain the data required for local operations at the relevant engineering field division.

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[7]For an explanation of the Computer-Aided Design System, see the last section of chapter VI.

Only the data that headquarters needed for management and reporting requirements and for the disbursement of funds would be forwarded to the central computer for processing. Users at the engineering field divisions would have instant access to their local fields, and the officers in charge of construction in the field would also be able to obtain current information. The Facilities Systems Office would continue to process only the essential programs common to all engineering field divisions.

In short, the engineering field divisions would no longer be dependent on the operation of a single computer. The Command named this concept Project Smart--i.e., the users would be in charge of the Source Management of (their) Resources and Time.

The planners expected to phase in Project Smart gradually. After segments of the new system were designed, tested, and implemented at the Command's Northern Division, which was the pilot site for the project; they would be distributed to other engineering field divisions on a carefully time-phased plan. Thus, each engineering field division would be able to grow gradually into the system as its employees gained the experience and confidence to use it well. A basic assumption in the planning of Smart was that the managers who used the system would decide what kinds of information should be programmed into the computers. Critics frequently comment that too many automated systems are designed by data processors with no intimate knowledge of the tasks for which they are creating programs and that, as a result, the programs do not provide managers with the information they need to perform their work well. The Command expected to involve the managers in the system's design from the start and was confident that the new plan would greatly improve the efficiency of the Engineering Field Division Management Information System and save both time and money.

COUNSEL

The Office of the Counsel was responsible for providing legal advice and services to the Command in matters relating to real estate, architectural-engineering services and construction, housing, public utilities, environmental issues, and public works operations. The Command employed 23 lawyers. Six of them were assigned to headquarters, and the remainder had their offices at the engineering field divisions.

Procurement of Construction and Architectural-Engineering Services

In the procurement of construction and architectural-engineering services, the Counsel's Office reviewed all contractual actions--either individually, under general rules, or by sample--and approved contract bonds.[8] The subjects included obligations under the Architectural Barriers Act and associated regulations, copyrighting of pesticide materials, and a

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[8]Ideally, the Counsel's Office should review all contracts; but there are too many of them for this policy to be feasible, so the attorneys concentrate on the most important ones--i.e., those which are controversial and those involving more than $500 million. They also audit others by random sample.

dispute with the General Accounting Office over altering buildings.[9] Other legal work involved export licensing of technical data for a propellant anchor; steps to verify surety process agents under Treasury Circular 570, note D; and an affidavit on architect and engineer selection for an Australian Trade Practice Tribunal case.[10] The Counsel's Office also gave advice on labor matters such as the Service Contract Act, wage rates for civilian labor on Guam, and the Italian Martina Franca labor decision.[11] The attorneys collected and reviewed Forms DD 1555 and SF 278 in connection with standards of conduct and conflicts of interest;[12] and they advised on the designation of senior employees in NAVFAC,[13] on a problem regarding organizational conflicts, and on the actions of an engineer employed by the Command who wanted to prepare value-engineering proposals for contractors.[14]

During 1980 the Counsel's Office furnished advice and services on the following major projects: the Submarine Support Base at Kings Bay, Georgia--including reviews of the draft and final environmental impact statements, questions about the ownership of dredged materials and authority to use planning funds for community-impact planning, and a decision regarding arresting authority for the guards;[15] renegotiation of the Iceland Prime Contractor

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[9]The Navy needed some building space in the Bay St. Louis area, and the National Aeronautic and Space Administration (NASA) had structures there it did not need. NASA was willing to alter the buildings to fit the Navy's requirements, provided the Navy reimbursed it; but the GAO ruled that this kind of an agreement was contrary to regulations.

[10]Contractors who build facilities for the government must be bonded. Treasury Circular 570 requires the contracting agency to make certain that the surety process agents who furnish the bonds are licensed to do business in the state where the construction will take place.

[11]This case involved a dispute over the fringe benefits that the Air Force would pay to Italian workers doing military construction near Martina Franca, Italy. Generally speaking, it was U.S. policy to pay foreign workers generously in lieu of fringe benefits. However, an Italian court ruled that the Air Force had to pay fringe benefits in addition. The Command became involved because it was the DOD construction agent in the Mediterranean, and the issue is whether or not a NATO agreement freed DOD from compliance.

[12]The DD 1555 is a statement filed by NAVFAC employees in grades GS-13 and above who make decisions to award contracts. It is designed to ferret out conflicts of interest. The SF 278 is a similar document required of civil servants in the super-grades (GS-16 through -18) and of admirals.

[13]"Senior employees" are civilians in grade GS-17 and admirals in pay grade O-8 (rear admiral, upper half).

[14]An electrical engineer employed at one of the engineering field divisions wanted to offer his services as a value engineer to construction firms that wished to obtain contracts with other government agencies and with other field divisions of NAVFAC. Although he promised not to give advice to contractors who did work for his own division, the Counsel ruled that his consulting work nonetheless constituted a conflict of interest. For a definition of the term "value engineering," see chapter VI.

[15]The contract guards that the Navy employed to patrol its bases do not have official police powers. The Command considered obtaining the authority to make arrests for the guards at Kings Bay, but special legislation was needed, and the Counsel decided the process was not worthwhile.

Contract;[16] and planned construction in the Indian Ocean, including interpretation of the Diego Garcia agreements and justification of preference for American contractors.[17]

Public Utilities

The procurement of public utility services for the Navy involved both federal acquisition laws and state and local public utility statutes, since rates and terms are usually set in published tariffs which can be changed only after proceedings before public utility commissions. The Counsel sought authority from the General Services Administration to represent the Navy and other executive agencies in hearings of this nature. Attorneys from Command headquarters and field offices participated in rate cases and other applications involving the Carolina Power and Light Company (Atlantic Division Counsel before the North Carolina Public Utilities Commission); the Southern Maryland Electrical Cooperative (Maryland PUC); the Buccaneer Sewage Company (Southern Division Counsel before the Florida PUC); the Gulf Power Company (depositions, prepared testimony, and cross-examination before the Florida PUC); the Newport Electrical Company (Northern Division Counsel before the Rhode Island PUC); the Public Service Company New Hampshire (Northern Division Counsel before the Maine PUC); the San Diego Gas & Electric Company (Western Division Counsel before the California PUC); and the Hawaiian Electric Company (Pacific Division Counsel before the Hawaiian PUC).[18]

In addition to these hearings, the Counsel's Office handled a number of other legal problems involving public utilities: the authority of the Navy to pay the cost of its share of sewage treatment facilities at Norfolk, Virginia, and at Pearl Harbor, where the EPA had refused construction grants for federal use;[19] the updating of standard clauses in long-term utility contracts at the time of rate adjustments; the sale of sewage service on Navy bases to private users; authority to pay for local public services used by naval facilities;

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[16]The Iceland Prime Contractor Contract set the ground rules for all construction the Command wanted performed in Iceland. It had to be partially renegotiated each year.

[17]Diego Garcia was owned by Great Britain, and the U.S. was leasing the island for a naval base.

[18]This decision was not fully satisfactory to the Navy, but the Counsel's Office decided not to seek further review.

[19]In the late 1970's the Environmental Protection Agency and the Navy were embroiled in a long-term disagreement over sewage plants. The EPA made grants to localities to finance the construction of these plants but disregarded the use that military bases made of the facilities when it computed the size of awards. In 1979 the Comptroller General ruled that the EPA had no right to ignore federal agency usage when making these grants. However, the Command had already programmed military construction money to help build new sewage plants at Norfolk and Pearl Harbor and decided to go ahead and spend the money. Then the Office of the Secretary of Defense interdicted this plan. At the end of 1980 the funding dispute had not been solved, and Norfolk and Pearl Harbor were still waiting for their sewage plants. Additional information about this controversy can be found on page 19 of the 1979 Command History.

and the legality of prohibiting the use of oil in the Indian Head, Maryland, power plant.[20]

GAO Protests and Reports

One of the functions of the Comptroller General of the United States is to oversee the procurements of federal agencies in order to assure that they conform to standard operating regulations. He also carefully examines the methods agencies use to procure supplies and services from private businesses. When the General Accounting Office criticized NAVFAC's procurement methods or when a congressional report was critical of some action the Command has taken the Counsel must prepare a response. In fiscal year 1980, the Counsel's Office prepared answers to inquiries about 33 different bids or construction proposals. These responses took the form of written and oral explanations of NAVFAC's position and of conferences with protestors and representatives of the General Accounting Office. In every instance the attorneys successfully defended NAVFAC's actions.

When the General Accounting Office audits or investigates the results of contract service, the Counsel also supervises NAVFAC's response. These duties range from advising various individuals who represent the Command before the GAO, to preparing replies that will be incorporated into DOD answers to Congress. During 1980, the Counsel dealt with fourteen of these inquiries. Three of the most important investigations, for which the Counsel prepared testimony or written responses, pertained to allegations of waste in Norfolk real-property maintenance contracts; allegations of defects in a Norfolk housing project and failure to obtain value for salvageable refuse at the Public Works Center, Norfolk; and the controversy over payment for sewage capacity with the Environmental Protection Agency.[21]

Real Property

The Counsel's Office furnished legal advice and services concerning the acquisition, management, and disposal of Navy real estate throughout the world. Real estate functions generated a disproportionate number of legal problems. In the area of acquisitions, the choice of a site for the new Navy Regional Medical Center in San Diego continued to arouse controversy both in

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[20]In this situation the Navy had a power plant which ran on oil, and the Department of Energy told it to convert the plant to coal. The Command was reluctant to comply, but the Counsel advised the the order was legal and that the Navy should obey.

[21]With regard to the salvage matter, the Command's public works centers contract with private firms to haul away the refuse that naval bases generate. These contractors then separate the salvageable wastes from the useless materials and sell the salvage for whatever price it will bring. The GAO decided the Command could produce revenue for the Navy if it used government employees to separate out the salvageable materials and then sold them itself. The Counsel responded that the suggestion was not feasible because Congress had asked the Department of Defense to cut wage-grade billets and to contract this type of work out.

For background on the controversy with the EPA over sewage plants, see footnote 20, supra.

Congress and in the courts; and the acquisition of about 4,000 parcels of land in the Chocolate Mountain Aerial Gunnery Range was finally completed.[22] Other problems included accepting a devise of defeasible fee in Stonington, Connecticut;[23] determining the value of AICUZ easements at Oceana and Fentress, Virginia;[24] handling payments to individuals whose lands had been condemned at Kings Bay, Georgia; reconciling the Navy's needs with the Bureau of Land Management's rules on land withdrawals;[25] determining interest on deficiency judgements;[26] negotiating a warehouse lease in London; securing reimbursement for liability insurance; and determining which fiscal year appropriation would pay for 12-month leases in Europe which overlap two fiscal years.

In the area of operating and managing real property, the Counsel advised the Justice Department about water rights that the Navy claimed in Oregon, Utah, Arizona, and South Dakota. He also provided information on the Navy's interest in submerged lands off California, produced a memorandum on the authority to make leases to Hawaiian churches, and commented about squatters on Navy land in Puerto Rico. Other topics he addressed were reimbursement to a private conservation group who constructed a fence on the Boardman Bombing

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[22]There is more information about the Navy Regional Medical Center in San Diego on pages 16 and 100 of the 1979 Command History and in the litigation section of this chapter, infra. The acquisition of land for the Chocolate Mountain Aerial Gunnery Range is discussed in more detail in the real estate section of chapter IV and on page 40 of the 1979 Command History.

[23]Devise of defeasible fee: a retired admiral willed the Navy some land with the restriction that it be used only for a park. If the Navy did anything else with it, the property and all improvements would revert to the admiral's heirs. Thus, to insure that the Navy did not erect costly facilities and then lose them, the Justice Department would have to examine all construction proposals to make certain the changes were compatible with park usage.

[24]"AICUZ" stands for air-installation-compatible-use zone. An air-installation-compatible-use zone is a geographical area in which nothing can be built that would interfere with the operations of an airfield (e.g., a skyscraper).

[25]The Navy wanted to obtain some public lands for a number of uses, notably for gunnery ranges; but the Bureau of Land Management was reluctant to allow property to be withdrawn from the public domain. After wrangling with the BLM for a number of years, the Command finally decided to ask Congress for legislation that would help the Navy secure the land it needed.

[26]Interest on deficiency judgements: when the Navy wishes to obtain some privately owned land, it can condemn the land, get an estimate of the property's worth, pay that amount to the owner, and then take immediate possession. If, however, the owner does not feel the Navy has reimbursed him adequately, he has the right to sue. In the past when a former landowner won a judgement, the Command paid him the sum awarded, plus 4 percent interest a year from the time the land was condemned. During 1980, a federal court ruled that the Navy was obligated to pay the prevailing interest rate instead.

Range in Oregon;[27] a claim against the Command for damaging a water well at Bangor, Washington; modification of a land order at China Lake, California; and the lease of a building for an American school in Bahrain.[28]

On the subject of property disposals, the Counsel's Office gave advice on a claim for buried treasure at Pensacola, Florida; on the Navy's rights in the Arctic Research Laboratory at Point Barrow, Alaska; and on a petroleum, oil, and lubricants lease in Panama.

Housing

The acquisition and management of family housing involved real estate, construction, and utilities issues, as well as special legal rules for housing. A member of the Counsel's staff served as the secretary of Navy Capehart Quarters, Inc.,[29] and advised the company about mortgage balances, Delaware franchise taxes, assignments, releases of land for easements, and similar issues.[30] The Counsel's Office also gave legal advice on an Edsell housing lease in the United Kingdom and on the transfer of Air Force family housing to the Navy at Lockport, New York.[31]

Legislation

The Counsel's Office reviewed pending legislation and commented on various bills, proposals, and reports of other federal agencies that affected the naval shore establishment. The attorneys furnished "no objection" or concurring statements on 16 pieces of legislation and also wrote 12 substantive comments. These extended discussions concerned some amendments to the Copeland Act; geothermal leasing; public transit; a park on Cumerland Island, Georgia; arresting power for guards at naval bases; and new limitations on federal land acquisitions.[32]

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[27]A conservation group wanted to erect a fence around wild flowers on the Boardman Bombing Range. The local naval authorities informed the conservationists that there was no money for fencing, so the conservation group spent their own funds and then asked the Command to reimburse them. The Counsel advised the Commander, NAVFAC, that there was no legal obligation to reimburse the group; and that this was a discretionary matter.

[28]The Command administers U.S. government property leases in Bahrain.

[29]Capehart housing is a type of Navy family housing that was built in the early 1960's. During that period the Navy had trouble inducing Congress to appropriate money for housing, so it adopted a scheme which involved incorporating a business to build housing so it could obtain private capital.

[30]Capehart Quarters was incorporated in Delaware because incorporation laws there are liberal and well-known. The term "assignments" refers to the right of an individual who has invested in Capehart to sell his obligation to another investor. The Navy must approve the "assignment" of the obligation to a new individual.

[31]Edsell housing is housing the Navy acquired in the United Kingdom on long-term leases.

[32]The Copeland Act forbids Navy contractors from pressuring their employees to kick back part of their wages to the employer. In the past some unscrupulous contractors have circumvented the Navy's wage rules by forcing workers to return part of their wages.

Handling requests for government documents under the Freedom of Information Act proved to be a particularly burdensome job. The Counsel prepared responses to 54 such requests; and this task required locating and furnishing the documents or, alternatively, justifying the refusal to furnish the material and preparing denials and responses to appeals. Individuals making requests often couched their demands in vague and general language, and the criteria for denial sometimes required impractical determinations (e.g., competitive harm).[33] The records that people most frequently sought were personnel payrolls, interviews regarding violations of labor laws, documents concerning experience with architectural-engineering firms, and real estate appraisals. At the end of 1980 a California court refused to allow the Command to deny payrolls simply on the basis of the DAR 1-329.3(c)(4)b.[34] This decision could force the Counsel's Office to ask each employer who furnished payrolls to the Command to sign a release for them. It could also obligate the Counsel to investigate any refusals.

Contractor Claims, Appeals, and Litigation

The Counsel worked with the Contract Division to prepare and review its final decisions on claims from construction companies, which averaged about two hundred a year. If a claim was large, controversial, or seemed partly justified, the Command sometimes granted the contractor a hearing before a "Chief's board" to settle the issue. The Counsel's Office prepared and presented the government's case for these hearings, and it handled eight such proceedings in 1980.

If a dissatisfied claimant chose to appeal the contracting officer's decision, the Counsel prepared Rule 4 submissions for the Navy General Counsel's Litigation Division and the Armed Services Board of Contract Appeals.[35] The attorneys readied NAVFAC's case for 105 appeals during 1980. Since the Contract Disputes Act put considerable emphasis on the prompt disposition of cases, the Counsel often had to work very hard to submit the Command's position in a timely manner.

In 1980, the Counsel's Office was involved in litigation concerning GAO bid protests; and it took part in 25 court suits, which dealt with procurement

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[33]Competitive harm: when some individual, company, or labor union asks for the release of a government contractor's payroll under the FOIA, the contractor has a right to argue against such disclosure on the grounds that the information might cause him "competitive harm"--i.e., it might give his competitors data that would weaken his position the next time he wanted to bid for a government job. Trying to assess the validity of these claims was time-consuming and difficult, but the Command generally denies requests for payrolls.

[34]The DAR 1-329.3(c)(4)b was a federal administrative rule which stated that agencies did not have to release payroll information to the public.

[35]The term "Rule 4 submissions" refers to Rule 4 of the Armed Services Board of Contract Appeals. When a company, which has competed for a military contract and has not received the award, opts to file an objection and then is dissatisfied with the way the contracting agency handles its initial complaint, the company may appeal the decision to the Armed Services Board of Contract Appeals.

awards, land use, the environment, and various monetary claims.[36] The most significant of these cases were:

a. Collins v. Claytor, U.S. District Court, Georgia--This case involved a dispute over a small business contract, which the Command let to the lowest bidder, Collins and Company. The second bidder then filed a protest with the local office of the Small Business Administration, claiming that Collins was not a small business within the definition of the law. The second bidder also filed for a preliminary injunction to forbid any work on the project until the case was settled. The SBA district office decided that Collins was not a small business, and Collins then appealed to the SBA's Size Appeals Board. Simultaneously, the company sued the Navy in the U.S. District Court. In 1980 the Size Appeals Board reversed the decision of its district office on a technicality and awarded the contract to Collins again. However, at that point so much time had passed that Collins and Company decided they did not want the job; and the Command was forced to pay several hundred thousand dollars for Collins' costs and for suspending the work.

b. California v. Navy, U.S.D.C., California, and 9th Cir.--The State of California sued the Navy because Navy jet engine test cells were violating local air quality standards. The district court found that the Navy had to satisfy local air standards. The Navy then appealed this decision to the 9th Circuit Court of Appeals. In 1980 the 9th Circuit Court declined to reverse the district court's pronouncement.

c. Dyneteria v. Boyer, U.S.D.C., South Carolina--This case involved another dispute over a small business contract. Early in 1979 the Command awarded P & B Selected Services an operations contract at Kings Bay, Georgia. The second bidder, Dyneteria, Inc., challenged P & B's eligibility to compete; but the local Small Business Administration office found in P & B's favor. Dyneteria then filed an appeal with the SBA's Size Appeals Board, and it also filed in U.S. District Court for an injunction to halt the award of the contract, pending a final decision; but the court denied the injunction. In the after award the Size Appeals Board finally ruled that P&B was not a small business and therefore was not eligible for the contract. Since the contract had been awarded, the Navy took the position that it was not obliged to follow the Size Appeals Board's decision, and the district court declined to intervene.

d. Zamora v. U.S. and about six hundred similar law suits, U.S.D.C., Guam--These cases were suits for additional fair value compensation for land which the Navy purchased on Guam between 1944 and 1963. A number of Guamanian former landowners and their heirs had sued the Navy under Public Law 95-134, alleging that the acquisitions took place under inequitable conditions at less than fair market value. The district court decided to hold jury trials on the value of the land before considering the charges of inequitable conduct. The plaintiffs allege that during its administration on Guam during the first half of the twentieth century, the Navy had retarded economic development and thus had depressed land values.

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[36] A company which bids for a government contract and is dissatisfied with the procedures or outcome may file a protest with the General Accounting Office. See the section on GAO protests, supra.

Preparing a rational defense in most of these cases might be impossible because many of the former landowners were deceased, no witnesses remembered the transactions, and the records that had survived were fragmentary and did not show how the Navy had arrived at its estimates for the property values.[37]

e. Catholic Action v. Brown, U.S. District Court, Hawaii--In the late 1970's the Command was building bunkers at Pearl Harbor. A local peace group suspected that the Navy might be planning to store nuclear weapons there, and sued under the National Environmental Policy Act in an effort to force the Navy to state its intentions. The Navy argued that the NEPA did not require such disclosures, and in 1979 the district court agreed. The com- plainants then appealed this decision, and in 1980 the 9th Circuit Court of Appeals partially reversed the lower court's findings. It stated that the Navy did not have to disclose whether it actually had nuclear weapons stored in the bunkers but that it was obligated to prepare an environmental impact statement to assess the effects that such storage might have on the environ- ment. The Navy sought consideration and has appealed to the United States Supreme Court.

f. Branning v. U.S., U.S. Court of Claims--This case involved an inverse condemnation suit that was filed by an individual who owned property near the Beaufort Marine Corps Air Station in South Carolina.[38] The Marine Corps had been practicing carrier landing approaches over his property, and the noise created by the circling of aircraft at landing speeds was extremely loud. Because the maneuvers were going on more than 500 feet above the complainant's land, the Navy was not automatically required to buy it. However, the trial judge found in Branning's favor. At the end of 1980 the Command was seeking review by the whole court.

g. Scofield and Sons v. Navy, Australian courts (Perth)--An Australian contractor did some work for the Navy at a naval communications station in Western Australia. The Navy was dissatisfied with the contractor's performance and withheld part of the payment. He then sued the Navy in an Australian court. The suit was dismissed for lack of jurisdiction.

h. U.S. v. Venable, U.S. Magistrate Court, Georgia--This case involved the criminal prosecution of a Civil Engineer Corps officer for ordering a NAVFAC subcontractor to move some nests of a protected species of bird called the osprey. The subcontractor inadvertently killed some young ospreys during the relocation operation, and the Department of the Interior brought charges. Since the U.S. was the plaintiff, criminal statutes forbade any employee of the federal government from defending the officer. The officer involved decided to defend himself, and won his own acquittal.

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[37]There is more information about the Guam land cases on page 18 of the 1979 Command History.

[38]An "inverse condemnation" is a legal procedure whereby the owner of property near some government facility sues to force the government to buy his holdings, on the grounds that some activity at the facility (e.g., the landing of aircraft) renders his property useless, or at least less valuable than it would otherwise be.

i. Barcello & Wolfson v. Westland Water District, U.S.D.C., California--This case involved a dispute between the Navy and the Interior Department over the water supply for the Naval Air Station at Lemoore, California. In the 1970's this naval base drew its water from the local water district, which in turn got most of its own supply from Department of the Interior sources in the Sierra Nevadas. In 1979 the Interior Department announced that it was cutting down on the amount of water it sold to the district, and the district cut back on the amount of water it supplied to its customers. Water users asked the Navy to join them in challenging the Interior position. The Navy wanted to be represented by the Justice Department in court, but the Justice Department sided with Interior. The disagreement was resolved when the Interior Department agreed to supply the Navy with all the water it needed.

j. Commonwealth of Puerto Rico v. U.S., U.S.D.C., Puerto Rico--This case sought to establish title to a parcel of land occupied by the Navy in Puerto Rico. The plaintiff argued that the property should revert to the Commonwealth when the Navy no longer needed it.

Several other law suits in which the Command was involved also deserve mention. First, the Hero Land Companies brought three different suits against the Navy for an inverse condemnation and for tort damages.[39] These complaints stemmed from aircraft operations and from limitations imposed by the AICUZ at Alvin Callender Field, the Naval Air Station, New Orleans.[40]

The controversy over choosing a site for the new Navy Regional Medical Center in San Diego continued in 1980.[41] Since the city of San Diego wanted the Navy to lease the land at the preferred site in Florida Canyon, the Navy had to file a condemnation suit to obtain ownership. In this case the court granted the Navy title to the land and an order for possession, leaving the value of the property to be determined later. During the same time period, a group of environmentalists brought suit to prevent construction at the Florida Canyon location because of alleged environmental damage. The court denied their request for a preliminary injunction. At the end of the year these suits were in abeyance while the Navy complied with a Congressional request for study of an alternative site in the Helix Heights area of San Diego. On 5 November 1980, the Secretary of the Navy reaffirmed the earlier decision to build the medical center in Florida Canyon.

PUBLIC AFFAIRS

In December of 1980, the Command's Public Affairs Office sponsored its first public affairs conference at the Naval Construction Battalion Center in Port Hueneme. Representatives from headquarters, two construction battalion centers, five engineering field divisions, and four public works centers participated in this two-day meeting. The purpose of the conference was to insure that NAVFAC's public affairs officers, and the activities they served, were well informed on current public information policies, responsibilities,

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[39] A "tort" is a wrongful act other than breach of contract which is remedied by a civil suit.

[40] There is a definition of "AICUZ" in footnote 24, supra.

[41] For background information about the medical center, see pages 16 and 100 of the 1979 Command History.

and trends. In addition, it served to identify the needs of the Command's public information staffs as the public affairs officers themselves perceived them.

Captain John J. Shanley, Jr., Commanding Officer of the Naval Construction Battalion Center at Port Hueneme, welcomed the 24 attendees and introduced the keynote speaker, Captain Frederick G. Kelley, Commanding Officer of the Naval School, Civil Engineer Corps Officers. Then the public affairs officers of the Atlantic Division, the Naval Construction Battalion Center at Gulfport, and the Naval Public Works Center at Great Lakes made presentations about their respective activities. These talks were followed by discussions concerning newspaper layout and design, NAVFAC's historical resources, and newspaper readership surveys. Captain Jack Garrow, Assistant Chief of Staff for Public Affairs at the U.S. Naval Base in San Diego, made a presentation on the public affairs aspects of the new San Diego Navy hospital; and Lieutenant Donna Hirabayashi from the Navy Office of Information at Los Angeles discussed community and press relations. Other topics included the impact of the Freedom of Information Act and the Privacy Act on public affairs, methods of dealing with the civilian news media, publication security review, the Navy Civil Engineer magazine, the collections in the CEC-Seabee Museum, and gender influences on modern writing.

SMALL BUSINESS OFFICE

In compliance with the Small Business Act of 1953, the Command sought to award a fair share of its contracts to small business firms. It thereby encouraged competition and at the same time fostered the growth of small business as a viable economic force. The Small Business Office also tried to increase contract awards to firms owned by members of groups that were socially or economically disadvantaged.

During fiscal year 1980, the Command negotiated contracts for $1.71 billion in goods and services within the United States. Out of this total, it awarded $1.02 billion to small business firms, $127.6 million to small firms owned by disadvantaged minorities, and $12 million to businesses owned by women.

The Command's Western Division awarded more than $20 million to the Small Business Administration under the 8(a) Program and was the Navy's leading participant in this endeavor. The 8(a) Program allowed the Small Business Administration to select small firms run by members of disadvantaged minority groups and to negotiate subcontracts with them to perform services and supply goods needed by the Department of Defense.

CHAPTER III

RESEARCH AND DEVELOPMENT

During 1980 the Command directed its research efforts toward remedying deficiencies that would affect its future ability to perform its duties. It placed great emphasis on improving communications between its research managers and the naval activities that utilized the results of their work. The 1980 program focused on the development of usable technology in five major areas: advanced base mobility,[1] shore facilities, ocean facilities, environmental protection, and energy.

ADVANCED BASE MOBILITY

The Command's two major advanced base mobility projects were the container off-loading and transfer system (COTS) and the offshore bulk-fuel transfer system (OBFS). The development of these systems would enable the Navy to utilize commercial shipping in amphibious or contingency operations when port facilities were unavilable. These projects represented NAVFAC's first venture into the development of large hardware systems through its own research program. The researchers concentrated their efforts on testing and evaluating the various components of the systems.

Container Off-Loading and Transfer System (COTS)

The Defense Department's plans for logistical support to sustain major military operations, including amphibious assaults and Rapid Deployment Force movements, relied heavily on utilizing commercial ships. Since the mid-1960's the commercial shipping industry had been steadily shifting to container ships, roll-on/roll-off vessels, and barge ships.[2] Although the ships required extensive port facilities to load and unload their cargoes, an amphibious assault would be most likely to occur in an undeveloped area where modern port facilities did not exist. The COTS program was therefore established to provide the hardware and techniques necessary to unload these ships at undeveloped beaches.

In 1980 the researchers completed an initial technical and operational evaluation of the temporary container-discharge facility (TCDF). This temporary facility consisted of a barge and crane assembly and was designed to unload container-ships in forward areas. The facility was tested without a vertical motion compensation system.[3] The Command expected that the CNO would grant approval for service use in the fall of 1981.[4] Technical and operational evaluations for the powered pontoon-causeway section were

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[1]An "advanced base" is a logistical base located in a war theater which provides supplies and services for troops at the front.

[2]"Roll-on/roll-off" vessels are ships specifically built to accommodate vehicles that can be driven onto and off of the ship.

[3]A "vertical motion compensation system" is a method of steadying the load while loading or unloading cargo from ship to lighters in an open seaway with up to five foot waves.

[4]CNO is an abbreviation for Chief of Naval Operations.

completed and preliminary approval for service use in 1981 was obtained, contingent upon the successful completion of a 200-hour operational test. Final approval was expected late in 1982.

Offshore Bulk-Fuel Transfer System

When the Marines land in hostile territory, they require large amounts of fuel to power their equipment and therefore must be supplied on a regular basis. The most efficient way to transport new fuel to invasion sites is in huge modern tankers; but since these ships have deep drafts, they cannot be brought close to the shoreline for unloading. Thus, engineers have had to devise some method to transport fuel from the tankers to the shore.

The offshore bulk-fuel transfer system was designed to solve this problem. It would consist of a single-point mooring buoy held in place by embedment anchors,[5] longer and larger pipelines than the Navy had previously used, fuel storage tanks, and associated pumping and handling equipment. In 1980 the Command finished initial development testing of the OBFS components. It also began teaching the Amphibious Construction Battalions how to use the single-point mooring buoy in preparation for operational and technical testing, which is planned for 1982.

Airfield Pavement Technology

The Civil Engineering Laboratory in Port Hueneme developed a method to cover repaired bomb craters on airfield runways by using prefabricated mats of fiberglass-reinforced polyester (FRP). The Command established the feasibility at Tyndall Air Force Base in Florida. These tests simulated the runway stress caused by C-141 and F-4 aircraft. Two equally effective methods of repairing the craters were developed. One utilized a 3/8-inch fiberglass-reinforced polyester mat over 24 inches of compacted, crushed stone which overlay backfilled debris; and the other used a 3/8-inch FRP mat over 12 inches of compacted, crushed stone, with a 1/8-inch, cast-in-place FRP mat separating the stone from backfilled debris placed at the bottom. Either of these methods would enable the Marine Corps to quickly repair airfields captured during amphibious landings.

Freeze Desalination Technique

In 1980 researchers completed the preliminary design for a 20,000 gallon-per-day bed-freezing desalination plant, which utilized test results from a 500-gallon-per-day model. This device purified salt water through a special freezing process. The unit would weigh 37,000 pounds and would cost about $280,000.

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[5]A "single-point mooring buoy" is a ship's buoy which is constructed in such a way that the ship can swing in a circle around the buoy. An "embedment anchor" is a special type of anchor that is lowered to the ocean's floor and then is driven approximately 30 feet into it by an attached explosive charge.

SHORE FACILITIES

In 1980 the Command's scientists and engineers continued to expend considerable time and money on the Naval Facilities System Advanced Development Project. This project was established to fund research that would help reduce the cost of maintaining and operating naval shore facilities. The major accomplishments of 1980 can be classed under the following topics: specialized inspection, explosives' safety, and improvements in building materials and techniques.

Specialized Inspection Systems

The visual inspection of steel wire rope on cranes is both time consuming and not altogether reliable. During 1980 researchers utilized both laboratory and field tests to evaluate new equipment for inspecting wire rope. This equipment was specially designed to avoid damaging the rope during the inspection process. The new equipment would provide accurate technical data, provide for a safer inspection operation, and save both time and money.

In the late 1970's the Navy used an MBIA aircraft salvage crane with a static pull of 45,000 pounds at a 30-degree angle to test the strength of aircraft power-check tie-down systems.[6] This technique was extremely hazardous both to people and equipment because of the heavy load applied to the tie-down system.[7] In 1980, researchers developed an improved testing procedure which utilized a hydraulic jacking system. The new method was considerably safer than the old one because it tested the tie-down systems by pulling on them vertically.

Explosives' Safety

The Command's engineers developed preliminary design criteria to define the minimum depth of the soil cover needed over the roof of a box-shaped ammunition magazine in order to mitigate the hazard that exploding debris posed for people in the area. These criteria were grounded both on theoretical studies and on field tests, and were responsible for saving the Navy approximately $500,000 in cancelled construction costs for ammunition storage magazines at the Naval Weapons Station in Port Chicago, California by the end of 1980.[8]

In July of 1980, the Command and the DOD Explosives Safety Board jointly conducted another set of tests at the Naval Weapons Center in China Lake, California. The tests determined the safety and stability of two types of earth-covered, box-shaped magazines by detonating a third magazine in their vicinity.

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[6]An aircraft power-check tie-down system" is a device that keeps aircraft stationary while their engines are running.

[7]If the cable broke, the crane would flip over backwards. If the tie-down system broke, the loose cable would whip about and endanger any people in the area.

[8]Prior to the Command's field testing for the new criteria, authorities at Port Chicago had believed that some of their ammunition magazines were too close to occupied buildings. The Command's tests established that these distances were not unsafe if the magazines had an adequate soil cover.

These tests confirmed the reliability of type A magazines that were separated by the standard distance requirements and verified that the existing spacing requirements for type IIB magazines were adequate.[9]

Roofing Systems

The Civil Engineering Laboratory in Port Hueneme designed an emergency roof-repair kit that contained the tools and materials necessary for making small temporary repairs on roofs. The laboratory then distributed these kits to the Chesapeake Division and to the Public Works Center in San Francisco for field testing.

Researchers also developed preliminary guidelines for the maintenance of polyurethane foam roofing after extensive laboratory experiments. At the end of the year these guidelines had not yet undergone full-scale field tests to demonstrate their effectiveness.

Materials

In the late 1970's, the Navy experienced a serious problem with the coating used to line concrete petroleum storage tanks: it was not very durable and required frequent replacement. Therefore researchers began conducting laboratory investigations of 35 coating materials that were available on the commercial market. The lab work concluded in 1980; and after evaluating the results, the Command selected four coatings for field trials. The researchers expected that all of these coatings would perform better than the one in use.

OCEAN FACILITIES

Seawater Hydraulics

During 1980, the Command tested a hydraulic motor that operated on seawater instead of oil. The motor weighed 5 pounds and had a 3.9 horsepower rating at 1,200 pounds per square inch of pressure. It ran successfully for 75 hours and achieved higher performance levels than the designers had anticipated. This device and its associated systems were expected to greatly simplify and improve the tools employed in underwater construction. The motor would also reduce pollution hazards, would be more resistant to corrosion, and would not require a very large tool housing. The Command received an Industrial Research - 100 award for the technological achievement involved in the development of the motor. This award was given each year for the 100 most significant advances made in various technical fields throughout the United States and the world.[10]

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[9]Both the "type A" magazine and the "type IIB" magazine are standard box-shaped facilities. The type IIB magazine, which originated during World War II, was not designed to withstand the pressures generated by the explosion of a nearby bunker. The type A magazine, on the other hand, is of recent origin and has massive walls that were specially created to withstand the force of a neighboring explosion.

[10]Industrial Research and Development magazine sponsors this award.

Underwater Splicing of Coaxial Cable

Researchers successfully tested a connector designed to join the ends of a broken underwater coaxial cable without bringing the cable to the surface for repairs.[11] The connector would reestablish the electrical connection and insure necessary cable strength in a more timely and cost-effective manner than the older methods.

Mooring System Prediction

In 1980, researchers developed a computer program that could predict the strains that various kinds of water motion would exert on the moorings used to anchor construction barges in shallow water.

The Navy would utilize this model to determine what sizes and configurations of mooring lines would best secure the barges under different physical conditions.

Cavitating Water-Jet Drill

The Research and Development Program designed a cavitating water-jet drill and built a model which demonstrated the device's ability to cut rock underwater. During the demonstration a dual-jet, rotating cutting head removed material at the rate of 100 cubic inches a minute. At the end of 1980 the Command issued design criteria for trench-digging equipment that employed this concept.

ENVIRONMENTAL PROTECTION

The objective of the Environmental Protection Program was to develop economical methods to help the Navy comply with pollution regulations enacted by the federal, state, and local governments. Without this research and development, the amount of Navy Operations and Maintenance money spent to remedy pollution in the shore establishment was expected to double by fiscal year 1985. The Environmental Protection Program made several noteworthy advances in 1980.

Waste-Water Recycling

Researchers completed a set of quality standards for reusing nonpotable water at Navy shore activities. They identified 75,000 stationary Navy facilities that were large water users and categorized them according to their quality and quantity demands and the characteristics of their waste water. The researchers also produced a manual that outlines current procedures for evaluating the reuse potential of waste water at shore activities. This manual was delivered in 1980. At the end of the year, the Command's engineers had also initiated a joint project with Army and Air Force researchers to design an instrument which would test the quality of recycled water and automatically report any deficiencies.

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[11] A coaxial cable is a cable that consists of a tube of material that conducts electricity surrounding a central conductor which is held is place by insulators. These devices are used to transmit telephone and telegraph signals.

Toxic Substances

In the late 1970's, the Navy used a foaming chemical substance called aqueous film-forming foam to control petroleum fires. As the foam broke down, it produced toxic waste water which could damage the environment. Therefore, the Command began to explore new ways of handling this foam. During 1980, researchers were working with an experimental process that utilized a combination of ultrafiltration and reverse-osmosis membrane technology to recover the foam from the waste water generated at firefighting schools.[12]

The Command also distributed information to naval shore activities on techniques for controlling the deterioration of insulation materials that contained friable asbestos. These methods, which were developed by the Civil Engineering Laboratory, provided the technology necessary to dispose of untreatable asbestos insulation safely, to repair recoverable insulation that contained asbestos, and to preserve the life of safe insulation. Prior to the development of the new methods, the Navy lacked an accurate means to determine if insulation contained asbestos. Accordingly the Navy removed all suspect insulation. Researchers estimated that the new techniques could save the Navy as much as $60 million in replacement costs.

Control of Sedimentation in Navy Harbors

Researchers at Mare Island Naval Shipyard in California continued to experiment with methods to control the accumulation of silt in harbors. In 1979 they tested several types of water jet arrays and a submerged plastic curtain. These devices were designed to prevent siltation in ship berths.[13] The tests showed that the new devices would improve the control of silt at a significantly lower cost than current dredging practices. Researchers expected to commence advanced development of a selected system in the fiscal year 1983.[14]

Marine Environmental Quality Assessment

This project was established to develop technology for assessing the quality of marine environments in Navy harbors. In 1980 the Command completed initial field tests on a microprocessor-controlled, automated seawater-analysis system that could determine the concentration of metals in harbor water. Researchers expected to carry out further development and operational tests in 1981 and 1982.

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[12]Ultrafiltration involves passing a liquid through a dense filter that holds back the dispersed particles. Reverse-osmosis membrane technology employs a semi-permeable membrane (i.e., permeable to water but not to sub- stances with larger molecules) to separate salt and impurities from fresh water.

[13]For more information about these methods, see page 30 of the 1979 Command History.

[14]"Exploratory development," involves the design and testing of components for a new system. "Advanced development," in contrast, means integrating the components together to produce a functioning whole.

Air Pollution Control

The goal of this research was to evaluate the best air pollution control technology available for possible use at naval shore activities. One aspect of the project involved examining the emission offset concept and evaluating its applicability to the pollution problems that the Navy faced.[15] The Command chose two activities to demonstrate the concept: the Naval Shipyard in Portsmouth, Virginia, and the Naval Air Station in Pensacola, Florida. Researchers obtained emission inventories from both activities and, at the end of the year, were verifying the reports through on-site inspection. The work would continue in 1981.

ENERGY

In 1980 Congress significantly cut funding for the Energy Program. In response, research managers concentrated the money available on maintaining the continuity of the highest priority projects and curtailed work on other investigations. The Command expected that funding for 1981 and subsequent years would return to earlier levels.

Organic Rankine Bottoming System

The Command signed a $1.8 million contract with Sundstrand Corporation for the installation of an experimental organic rankine bottoming system at the Naval Air Station in Bermuda. The Department of Energy provided half the money for this project. The system was designed to recover energy from high-temperature gas expelled by the diesel engines that drove electrical turbines in Navy power plants. The exhaust gases from the diesels were used to heat an organic fluid to a gaseous state. The gas, in turn, drove the turbines, resulting in the production of 15 percent more electricity with no additional consumption of fuel.

Photovoltaics

In 1980, Congress funded the Department of Energy's Federal Photovoltaic Utilization Program.[16] This program included money for the installation of photovoltaic units at a number of remote Navy sites and gave the Navy an incentive to purchase additional photovoltaic systems. These systems were desirable because of their reliability and their ability to function without a mechanical power source. The experimental units would provide test data for future installations.

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[15]Utilization of the emission "offset concept" allows greater flexibility in air pollution control. Air pollution from certain sources is difficult to control. Consequently the EPA allows greater reductions in air pollution at more easily controlled sources to compensate for, or "offset", smaller reductions at the sources that are more difficult to control. The goal is simply to meet the overall air quality standards set for a given geographic area.

[16]Photovoltaic cells turn sunlight into electricity.

Geothermal Energy

During 1980 researchers investigated the feasibility of using geothermal power at the Naval Air Station in Fallon, Nevada. Exploratory wells that the Navy drilled in 1979 indicated that there was a very large geothermal resource under the air station. In all probability, the Command would contract with a private firm to develop the power, using an approach similar to the one employed at China Lake Naval Weapons Station in California.[17]

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[17]For a discussion of the geothermal project at China Lake, see page 112 of the 1979 Command History.

CHAPTER IV

PLANNING AND REAL ESTATE

PLANNING

Master planning, as defined by the Naval Facilities Engineering Command, is the comprehensive process of determining facility and real estate requirements relative to assets and constraints in order to provide for the logical and efficient use of existing facilities and to guide redevelopment and growth. Naval Facilities Engineering Command planners responded to operational demands; federal, Navy, and Marine Corps policy; environmental needs; and fiscal conditions and concerns.

Master plans describe, in graphic and narrative form, the existing conditions at an activity, natural and man-made constraints, mission requirements, and proposed concepts and plans. The documents also include an outline of capital improvements, which enumerate specific projects and sites to implement the master plans' ideas. During a nine-year planning cycle, over 280 activities were to receive master planning services, which varied according to the individual activity's needs.

During 1980, the Chief of Naval Operations approved master plans for the following complexes and activities:

Naval Base, Great Lakes, Illinois

Fleet Anti-Submarine Warfare Training Center, Atlantic; Norfolk, Virginia

Navy Public Works Center, Norfolk, Virginia

Naval Communications Area Master Station, Atlantic; Norfolk, Virginia

Naval Air Station, Meridian, Mississippi

Naval Complex, Point Loma, San Diego, California

U.S. Navy Facilities, Sasebo Bay, Japan

Pacific Missile Test Center, Point Mugu, California

Naval Activities, New Orleans, Louisiana

Naval Supply Center, Norfolk, Virginia

Naval Station, Norfolk, Virginia

Naval Air Station, Oceana, Virginia

Fleet Combat Training Center, Atlantic; Dam Neck, Virginia Beach, Virginia

U.S. Naval Station, Keflavik, Iceland

U.S. Naval Air Facility, Sigonella, Sicily

Naval Communication Station, Stockton, California

Naval Weapons Station, Concord, California

Naval Surface Weapons Center, Dahlgren, Virginia and White Oak, Maryland

Pacific Missile Range Facility, Barking Sands, Kauai, Hawaii

Naval Weapons Station, Concord, California

Naval Station, Keflavik, Iceland

Naval Air Facility, Sigonella, Italy

Naval Communication Station, Stockton, California

Naval Complex, New Orleans, Louisiana

Navy Facility Assets Data Base

The Navy Facility Assets Data Base was a computerized inventory of all real property owned and leased by the Navy. The Command had maintained the Navy's real estate inventory for many years and had first automated it in 1954. In 1979, the system was changed to a data-based management, on-line mode of operation.[1] During the first six months of 1980, the Command added several new elements to the data base, which in turn made it possible to extract more kinds of information from it. Three of these data elements were added at the request of the real property maintenance activity staff. These new elements would break each naval command's maintenance burden down into categories of facilities (e.g., shipyard maintenance, troop-housing maintenance) and then would express that burden in terms of current plant value by category of facilities and the maintenance fund sources for each category. The planning unit established procedures for collecting the initial data and for updating information in the future, but at the end of 1980 implementation was still awaiting CNO approval. In addition, the planners developed a method to compute the current plant value of facilities leased by the Navy.

Beginning in September 1980, this current plant value would be included in reports on the Navy Facility Assets Data Base.

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[1]The term "data-based-management, on-line mode of operation" refers to the way users who work at locations distant from the computer enter data into it. Under this system, computer terminals are set up where they are convenient to the users. When an individual wishes to enter data into the central computer, he types the information into a remote job-entry terminal, which in turn transmits it to the computer's memory bank.

The Commercial-Industrial Program needed a way to determine depreciation for buildings, structures, and utility systems.[2] The planners developed such a method, which utilized the cost of the facility to the government and an estimated life for each type of facility. The Command would calculate the amount of annual depreciation for every facility owned by the Navy and the Marine Corps and would print it each year in the Detailed Inventory of Naval Shore Facilities (NAVFAC P-164).

The Command also revised management specifications for the annual reports on the Navy Facility Assets Data Base[3] to account both for the 1979 conversion to a data-based-management, on-line system and for the inclusion of new data elements. Annual reports that reflected these changes were printed in September 1980.

Shore Facilities Planning System

The Shore Facilities Planning System was established to determine what facilities were necessary to accomplish assigned missions at naval shore activities and to ensure the optimum use of existing facilities. By 1980 the Shore Facilities Planning System had been in operation for many years. The Command first automated it in 1968, and early in 1979 the planners converted it to a data-based-management procedure that would permit the engineering field divisions to process information for the system by cathode ray tube.

In 1980, the Command began efforts to modify and strengthen the system's programs in order to make them more understandable to the users. The planning staff developed a number of special reports to help users manage the facilities under their cognizance. The staff devised quality control programs to improve the quality and accuracy of the information available through the planning system and also developed better methods for setting annual planning goals and for identifying which activities would be scheduled to receive new weapons or to undergo changes in mission or in base loadings.[4]

Economic Analysis

In 1980, the planning unit's systems analysts reviewed a number of completed economic analyses:[5]

a. Steam Plant at the Puget Sound naval Shipyard, Bremerton, Washington--In the 1970's the Puget Sound Naval Shipyard was served by a central coal-fired plant which supplied steam for heat and industrial purposes.

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[2]The Commercial-Industrial Program was established in the 1970's to comply with an executive order. Its purpose is to examine the various functions the Command performs in order to determine if any of them might be carried out more cheaply by private firms under contract.

[3]P-77, P-164, and P-319. The Command also submits annual reports to the General Services Administration on real estate owned and leased by the Navy.

[4]"Base loadings" are the ships, planes, and people that are assigned to a naval base.

[5]An economic analysis is a procedure for determining whether it is more cost effective to modify or expand a particular structure or to tear it down and build a new one.

Managers there decided it would be useful to determine if a system of decentralized (i.e., "satellite") oilfired plants, each of which heated several nearby buildings, would be cheaper. The evaluation and revised economic analysis suggested the life-cycle costs of a satellite oil-fired system would be lower than the cost of the central coal plant. The results also indicated that the Navy would save money on its building costs by constructing the satellite plants as soon as possible.

b. Housing Alternatives in La Maddalena, Italy--The systems analysts reviewed a report, that supported the acquisition of 100 housing units at La Maddalena, in order to determine its adequacy. They approved the determination that the best way to obtain these units was the lease-construction method rather than conventional military construction.[6]

c. Modernization of Housing for Unaccompanied Enlisted Personnel at the Marine Corps Base, Camp Pendleton, California--After a thorough evaluation, the systems analysts concluded that the final decision on this project should not be based upon economic considerations. Moreover, the report's shortage of documentation to support the costs that it cited precluded a general recommendation about similar projects at Camp Pendleton.

d. Rifle Range Improvements at the Naval Submarine Base, Bangor, Washington--The systems analysts reviewed this economic analysis as requested. On the basis of detailed comments and concerns, they concluded that the analysis should be revised.

e. Leasing of General Space for the Naval Training Equipment Center, Orlando, Florida--The Naval Training Equipment Center in Orlando needed additional building space. The alternatives were either to construct a new facility or to rent an available building which was considerably larger than the center required. The economic analysis on this problem recommended that the center lease the available building jointly with other naval activities in the Orlando area which also needed space, and the planners endorsed this idea as the most cost-effective choice.

f. Acquisition of Warehouse Space at Auburn, Washington--The analysts approved a report on methods of acquiring warehouse space at Auburn. The report recommended leasing about 200,000 square feet of space from the GSA.

In addition, the analysts critiqued a proposal from the Commander in Chief, Atlantic Fleet, to lease-construct unaccompanied personnel housing. They also examined a study which compared the cost of building living quarters on naval bases for unaccompanied military personnel with the cost of giving these individuals a housing allowance to rent their own quarters in the civilian community. The latter study concluded that while the housing allowance was

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[6]The term "lease-construction" refers to a method the Command sometimes employs to obtain new buildings. Under this arrangement a private contractor builds a structure to NAVFAC's specifications and leases it to the Navy for a prescribed number of years. At the end of the period, the Navy vacates the property; and the contractor is free to use it as he wishes. This method of obtaining facilities is preferable when the Navy has only temporary need for them.

cheaper in areas where rents were low, it was more cost-effective to build housing on naval installations in high rent communities. The analysts also revised the economic analysis handbook (P-442).

Lastly, during February, June, and October of 1980, two analysts conducted seminars in economic analysis at the Naval Material Command's Acquisition/Logistics Management Training Center in Anacostia, Maryland.

Facilities Planning Criteria

The Command directed its major efforts in this area toward improving guidance for waterfront and airfield planning. It also developed planning criteria for shore intermediate maintenance activities.[7] This somewhat controversial maintenance concept retained a high priority, and its implementation required the acquisition of many new facilities. In airfield planning, the Command's major accomplishment was finishing a set of uniform standards by which airfields would be laid out in all three services. These standards governed runway plans, the locations of buildings and other facilities that were near aircraft operations, and the implementation of DOD directives on air installation compatible use zones.

Planning Cold-Iron Facilities

The continuing energy crisis and the military's personnel retention problems helped to maintain high interest in furnishing power to moored ships from the pier when their own power plants were shut down (colloquially known as "cold-iron" services). Planning personnel continued to study this problem and to seek workable solutions. Among the difficulties encountered were the multitude of technical disciplines involved in providing the services and the conflicting ideas propounded by various naval commands involved in the program. By establishing coordinating committee made up of individuals from the several organizations involved, the planning staff attained real progress in setting up a unified approach to the problems. As a result, they were able to produce a planning methodology, two completed cold-iron assessment studies (Norfolk and San Diego regions), and a basic framework for a long-term planning system.

File on Ports in the Continental United States

In February 1980, the Chief of Naval Operations ordered the Command to develop a data file on ocean ports for use in the Joint Operations Planning System.[8] This file would contain detailed information on the capabilities of 50 ports in the continental United States--both commercial and military--to support the armed services in emergencies. Since the Joint Chiefs of Staff imposed a stringent deadline, the Command gave this project high priority. A team of four engineers, who represented all three branches in the Requirements Planning Division, went to work on the file. This team expended one man year

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[7]This expression pertains to ship maintenance. Intermediate maintenance can be defined as a level of maintenance more complex than that performed by a ship's company but less complete than a major overhaul.

[8]The Joint Operations Planning System is a highly automated DOD plan used in preparing contingency plans for joint military action.

of effort on the project and completed their assignment ahead of schedule.

Systems Analysis and Operations Research

The Command maintained an ongoing study, the Military Construction Cost of Ownership Study, which annually calculated the cost of owning various military facilities. The primary purpose of this study was to determine when it became more cost effective to replace a facility than to continue performing maintenance.[9] In 1980, the planning unit revised the study and broke down its most recent findings into categories for the CNO and for Congressional budget hearings.

A group of analysts also did a study of the public works departments' management information system to determine if it could be run more economically. Some public works departments wanted to adapt more of their functions to the computer. The analysts studied these proposed changes and decided which ones should be made right away and which ones could be effectively postponed.

The Shore Requirements Standards and Manpower System (SHORSTAMPS) was a personnel program that kept track of how manpower was utilized in the naval shore establishment. In 1980, the Command's planning staff made a special study of high-graded civiliam employees (GS-13 and above) to determine if they exercised responsibilities commensurate with their high levels of pay. The systems analysts developed a model that recommended a new distribution of the Command's high-graded positions, and at the end of the year the Manpower Management Division was integrating this model into SHORSTAMPS.

In December, two systems analysts presented an essay on the relationship between rising energy bills and deferred maintenance at the 46th Military Operations Research Symposium held at the Naval War College in Newport, Rhode Island.[10] The paper concluded that the maintenance of naval shore activities could not be increased under funding from the real property maintenance activity account because of high energy costs. At the end of 1980, the Command was meeting its energy bills, and increased funding for maintenance was enabling the navy to decrease its maintenance backlog.

The systems analysts also conducted an accuracy evaluation of the Navy Facility Assets Data Base. The accuracy evaluation found that the user of summary information, such as total square footage for an activity, can be confident of a high degree of accuracy for facilities reported in the data base. The user who works with individual property records, however, should expect a lower degree of accuracy.

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[9]For example, a new building usually requires relatively little maintenance and repair; but as the structure ages, the cost of upkeep also rises; and at some point it becomes more economical, at least over the long run, to tear the building down and replace it with a more modern facility.

[10]The paper was entitled "Energy Bills Are Being Paid by Deferring Maintenance--True or False?"

Special Studies

Special studies conducted in 1980 included planning assistance to the Joint Chiefs of Staff and the CNO on the military buildup at Diego Garcia. The Planning Program also made an examination of the Persian Gulf area (multiple locations in various countries) to gather information for the Rapid Deployment Force and to locate a logistic port for naval forces. The Requirements Planning Division participated in a CNO survey team that visited one of the potential sites in the Persian Gulf.

Another special study involved the Electromagnetic Pulse Radiation Environment Simulator for Ships (EMPRESS). The EMPRESS was a device which, simulated, at greatly reduced intensity, the electromagnetic pulse generated by a nuclear explosion. This electromagnetic pulse can adversely affect electronic and electrical systems, including critical shipboard equipment, over a wide geographic area. The Navy had an EMPRESS facility at Point Patience, Solomons, Maryland which was designed to test naval vessels in order to determine their vulnerability to electromagnetic pulses. In 1980 the Naval Surface Weapons Center, which was running the project, asked the Naval Facilities Engineering Command to examine possible alternate locations for the EMPRESS facility. The desire was to locate a site that would be more accessible to a greater variety of ships. The Planning Division completed the alternative location study during 1980.

REAL ESTATE PROGRAM

The Command acquired AICUZ easements[11] over 1,411 acres of land adjacent to the Naval Air Station, Oceana, California; and the Naval Auxiliary Landing Field, Fentress, Virginia.[12] These easements cost the Navy $4.25 million. A 729-acre explosive safety hazard zone was also condemned for the Navy Magazine at Lualualei, Hawaii.[13] The Navy deposited $10 million in court as the estimated fair market value of this property. Lastly, the Command also acquired the remainder of the Chocolate Mountain Aerial Gunnery Range in Imperial County, California, by condemnation. This action concluded a four-year effort in which the Navy obtained 119,200 acres from 1,815 private landowners and received property valued at $400,000 through an exchange with the State of California.

The Command submitted the following actions to the Armed Services Committees for review and approval: the transfer of 1,064 acres of land and improvements from other federal agencies at no cost to the Navy; the acquisition of 5,054 acres for AICUZ and reserve purposes at an estimated cost of $20 million; and the disposal of 1,375 acres of land and improvements, which had originally cost the Navy $1.85 million.

Each major program under NAVFAC's cognizance had to submit a quarterly progress report, which was used in formulating the annual Command Management Plan. In 1980 the Real Estate Division revised the format for its quarterly

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[11] "AICUZ" means air installation compatible use zone.
[12] Navy Military Construction Projects P-149 and P-997.
[13] Navy Military Construction Project P-009.

reports in order to provide headquarters with a uniform system for measuring the performance of the engineering field divisions.

Finally, chart 4-1 summarizes the rents paid and received by the Navy in 1980:

CHART 4-1 ANNUAL RENTS PAID BY THE NAVY

Worldwide	U.S.	Possessions	Foreign Countries
$13,435,000	$4,469,000	$49,000	$8,917.000

ANNUAL RENTS RECEIVED BY THE NAVY($ MILLION)

Worldwide	U.S.	Possessions	Foreign Countries
$5,711,000	$5,111,000	$558,000	$42,000

Natural Resources Management

Outdoor Recreation

On 2 August 1979 President Carter issued a memorandum which emphasized the importance of expanding the National Trails System to provide recreational opportunities for Americans who enjoyed hiking, backpacking, and similar outdoor activities. The President's major goal was the designation of 75 new trails by the end of 1980. The Command reviewed existing outdoor recreation trails at naval installations all over the country for possible selection. A trail at the Naval Air Station, Meridian, Mississippi, was officially nominated for the National Recreation Trails System in 1980.

On 7 April 1978, the Department of Defense and the Department of the Interior signed a memorandum of agreement for the development of outdoor recreation on military lands. In accordance with this memorandum, the Command began working with the Heritage Conservation and Recreation Service (HCRS) to develop cooperative agreements between the naval installations, the HCRS, and the relevant state recreation agencies wherever potential for outdoor recreation existed.[14] The DOD expected that the preparation of outdoor recreation plans and their implementation would soon follow.

[14]The Heritage Conservation and Recreation Service is a subdivision of the Department of the Interior which, among other tasks, works to promote outdoor recreation.

Youth Programs

In 1980, the Command assumed responsibility for overseeing Navy participation in the Youth Conservtion Corps and the Young Adult Conservation Corps. Previously the Chief of Naval Operations had administered these programs for the Navy, and the Command had provided technical assistance in planning conservation projects at participating installations. Both of these programs were sponsored jointly by the Department of Agriculture and the Department of the Interior. Their purpose was to further the development and maintenance of the country's natural resources by employing young men and women to work on conservation projects on public lands. In 1980 nine naval installations took part in the Youth Conservation Corps program, and three installations participated in the Young Adult Conservation Corps program.

Natural Resources Management Initiatives

Deficiencies in available data on natural resources and the environment led to costly litigation in 1980. When the Deputy Undersecretary of the Navy directed that the management of natural resources be strengthened, NAVFAC developed a statement that defined the natural resource functions of the Navy. Eventually the Command hoped to produce a program objective memorandum which would show three levels of funding and manpower and would describe the kinds of activities possible at each funding level.[15] Additional money would be necessary to respond to public laws and executive orders concerning the protection of endangered species, soil and water conservation, fish and wildlife management, outdoor recreation, forest management, the protection of prime farmlands, floodplain management, wetlands protection, and related subjects. These measures would help NAVFAC become better prepared to assist the commanding officers of naval installations in managing natural resources and would also allow the Command to deflect costly litigation, to avoid delays in military construction, and to strengthen other programs designed to protect environmental quality.

Forest Management

The Command's forestry program managed forests that grew on Navy lands. One aspect of this program involved cutting down trees to build firebreaks or to thin overcrowded stands of timber. Reforestation was also an important part of the program, and in 1980 the Command planted about 1,600 acres of trees.

New procedures for funding and managing the forestry program were issued in 1979, and the Command implemented them in 1980. Previously the Navy had been able to draw on money from the sale of timber on all DOD lands to finance the program. The new procedures restricted the Department of the Navy to using timber sale proceeds from Navy and Marine Corps lands only. In 1980, however, income from the sale of timber products on Navy lands actually exceeded program expenses by $450,000; and the command was able to forward surplus revenue to the U.S. Treasury.

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[15]For an explanation of the term "program objective memorandum," see chapter 5.

CHAPTER V

MILITARY CONSTRUCTION PROGRAMMING

Each fiscal year the Navy submits its military construction budget to Congress. The budget is processed in the form of two separate bills--one to authorize the construction projects and the other to appropriate funds for construction. The projects included in a Navy military construction budget are defended before the appropriate military construction subcommittees of the House and Senate Armed Services and Appropriations Committees. In the early 1980's, the Navy reviewed its Military Construction Program very carefully because Congress had been approving a relatively small sum of money, and a large number of deficiencies required correction. Therefore, it was essential that as many projects as possible be completed within the funding that Congress made available.

During 1980 the Command was responsible, under a charter from the Chief of Naval Operations, for programming Navy and Marine Corps military construction requirements and for assisting the CNO in processing, justifying, submitting, and presenting those needs through the Navy Department, the Office of the Secretary of Defense, the Office of Management and Budget, and the Congress for enactment into law. The Command was also responsible for the administration, assignment, and execution of planning and design for the approved projects.

In 1980, the Command put great emphasis on preparing and supporting the fiscal year 1981 Military Construction Program. It also continued the planning for the fiscal year 1982 program and initiated planning and design for the 1983 program. In addition, it developed a Five-year Defense Plan. Stress was placed on maintaining communications with the major claimants, the resource sponsors, and the various agencies in the program-review cycle.[1] Finally, the Command focused attention on efficient administration of the Exigent Minor Construction Program.

Every year, OPNAV resource sponsors budget the money for their facilities needs during the Program Objective Memorandum process.[2] During 1979 and 1980 there was a significant increase in the money budgeted for the five-year military construction program. For example, the fiscal year 1982 proposal requested $1.4 billion from Congress--nearly double the 1981 appropriation.

In judging the accuracy of military construction funding requests, each resource sponsor utilized the evaluations of the Deputy Chief of Naval Operations (Logistics), issue papers from major claimants, and information from

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[1]A "resource sponsor" is either a Deputy Chief of Naval Operations or a senior officer on the CNO's staff who allocates the resources to program military construction for commands under his purview.

[2]OPNAV is an acronym which stands for "Office of the Chief of Naval Operations." A Program Objective Memorandum sets forth the major goals that the Command hopes to attain over a five-year period. One is drawn up for each fiscal year.

program managers in the systems commands.[3] Resource sponsors evaluated the adequacy of the money allocated for facilities to support new missions and weapons systems. They also examined the funding requested by major claimants to remedy existing deficiencies and to effect mission alterations, changes in home ports, advances in technology, and associated requirements at various naval activities. The military construction budget was then developed from the approved Program Objective Memorandum. Once resource sponsors had programmed funding the military construction needs, the funding level was changed only under exceptional circumstances.

During 1980 the Command's military construction program again placed major emphasis on environmental quality, energy conservation, shipyard modernization, waterfront facilities, shore intermediate maintenance activity (SIMA) facilities, and the Trident program.

ENVIRONMENTAL QUALITY PROGRAM

At the request of Congress and the Secretary of the Navy, the Chief of Naval Operations allocated military construction funds to finance the Navy's Environmental Quality Program. Since most naval installations are located in densely-populated areas where the interest in environmental issues is highest, the Navy must pay strict attention to the environmental problems it creates. Not only do ships and aircraft produce pollution, but various kinds of shore facilities also pose environmental problems.

In response to the Water Quality Act of 1965, the Command initiated a program designed to improve waste water discharge to meet evolving standards and to protect the quality of lakes, rivers, and other sources of water. This law focused government attention on the effects of pollution and on recent advances in pollution abatement technology.

Executive Order 11752, issued in December 1973, committed the federal government to model behavior and mandated clean up of all environmental pollution connected with the design, construction, management, operation, and maintenance of its facilities. The Command took several measures to satisfy this order. It continued to monitor pollution abatement deficiencies; and it devoted more attention to noise pollution, solid waste disposal, oily waste facilities, air emissions from power plants, improvements in water quality, and land-use planning. The Command received its initial funding for corrective construction in fiscal year 1968. The following chart shows the amount of money Congress approved for the abatement of air and water pollution during subsequent years:

[3]An "issue paper" describes a particular naval command's funding needs for facilities construction.

CHART 5-1 THE ENVIRONMENTAL QUALITY PROGRAM

CONGRESSIONAL APPROVALS

Fiscal Year	Air	Water	Total
1968	0	$23,382,000	$23,382,000
1969	$6,178,000	4,904,000	11,082,000
1970	4,100,000	22,037,000	26,137,000
1971	1,120,000	25,801,000	26,921,000
1972	15,962,000	21,251,000	37,213,000
1973	24,194,000	51,216,000	75,410,000
1974	27,636,000	55,107,000	82,743,000
1975	10,908,000	47,663,000	58,571,000
1976	2,843,000	44,904,000	47,747,000
1977	9,020,000	41,199,000	50,219,000
1978	700,000	27,970,000	28,670,000
1979	1,010,000	54,410,000	55,420,000
1980	4,760,000	70,540,000	75,300,000
1981	0	26,290,000	26,290,000
1982*	2,030,000	33,740,000	35,770,000

*Pending Congressional approval

ENERGY CONSERVATION PROGRAM

The administration and the Department of Defense implemented a plan to alter the design and construction programs of the military services and defense agencies in order to effect maximum conservation of energy. This plan called for a two-step implementation. First, a comprehensive evaluation of all existing military facilities was necessary to decide on changes that would achieve the desired energy reduction; and second, the respective agencies had to modify the planned design of their construction projects. The following chart shows the amount of money programmed or proposed for the energy conservation program:

CHART 5-2 THE ENERGY CONSERVATION PROGRAM

Fiscal Year	Amount ($ Million)
1976	$28.9
1977	52.6
1978	26.1
1979	43.0
1980	46.8
1981	48.0
1982*	53.0
1983**	52.2
1984**	60.0
1985**	60.0
1986**	60.0

*Congressional submission

**As included in the January 1981 Five-Year Defense Plan

TRIDENT PROGRAM

One of the largest and most important areas of military construction programming involved the Trident strategic submarine. The Trident weapons system was one of the biggest projects ever undertaken by the Navy. Its primary function was to furnish an undersea missile system to help insure that the United States possessed a credible deterrent to nuclear war during the 1980's.[4] The system consisted of a new nuclear powered submarine with new long-range missiles; and two shore facilities capable of providing fully integrated refit, training, missile processing, and logistical support exclusively for the Trident program. The Naval Facilities Engineering Command was assigned complete responsibility for developing and constructing the new base complexes, as well as facilities at other locations to support the Trident weapons system. Approximately $700 million was programmed from fiscal years 1973 through 1873 for design, military construction, defense access roads, community impact assistance, and family housing for the first Trident base at Bangor, Washington.

In January 1978, the Deputy Secretary of Defense approved Kings Bay, Georgia, as the site of a new naval submarine support base. The base was needed to accommodate the Poseidon submarine squadron that the Navy was withdrawing from Rota, Spain under the terms of the Treaty of Friendship and Cooperation with Spain. Kings Bay was an inactive military ocean terminal which the Army owned and maintained for emergencies since the Korean War. After the

[4]Although the Soviets might conceivably destroy almost all of America's land-based ICBM's during a first strike, they could not destroy submarines armed with nuclear missiles because, with the current level of technology, they would not be able to find them.

Army transferred its property to the Navy, funds were reprogrammed for the necessary initial construction that had been authorized by Congress.[5] In April of 1978, NAVFAC awarded contracts for dredging and for building waterfront facilities and utilities, and the actual construction began in May. Through fiscal year 1981 the cost of new construction at Kings Bay would total about $105 million, exclusive of housing and defense access roads. The most essential facilities were completed by July 1979, and the Rota squadron relocated to Kings Bay.

In May 1979, the Secretary of the Navy announced that Kings Bay had also been tentatively selected as the Atlantic Coast Trident base. In 1980, the Navy filed its last environmental impact statement, and the selection of Kings Bay was finalized. During the early 1980's, the Naval Submarine Support Base at Kings Bay comprised 12,000 acres of government land, plus an additional 4,000 acres that were under a restrictive easement.[6] The Navy planned to support both Trident and Poseiden submarines at Kings Bay and estimated that there was sufficient room for several Trident squadrons if necessary.

The initial Trident construction would support just one squadron of the new submarines. It would include facilities for handling and storing weapons, for maintaining and repairing submarines, for housing personnel support and administrative functions, and for training crews. The Command also expected to build a number of family housing units. Altogether, the Navy was planning a $1.6 billion military construction program--the largest single effort it had ever proposed in peacetime--which would cover nine fiscal years beginning in October 1981 (fiscal year 1982).[7]

SHIPYARD MODERNIZATION

The Shipyard Modernization Program was the capital investment program through which the Navy acquired the major industrial facilities and equipment for U.S. naval shipyards. Developed in the 1960's by the Bureau of Ships (now called the Naval Sea Systems Command), this program originally consisted of two phases: a "short-range program," spanning fiscal years 1965 through 1969, and a ten-year "long-range program," covering fiscal years 1970 through 1979.

Because of base closures, changes in fleet size, and the likelihood of tight budgets in the future, it was clear by the early 1970's that the Shipyard Modernization Program would have to be scaled down. As a consequence, the CNO directed the Naval Sea Systems Command to take the appropriate action, which began in November 1973 and ended in May 1975. Projects submitted for the 1976 budget, which was prepared before the completion of the restructuring, were certified as necessary and integrated into the revised modernization program. Funding from Congress for shipyard modernization averaged $64 million a year from fiscal year 1977 to fiscal year 1981. At the end of 1980 the outlook for military construction funding for this program had greatly improved,

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[5]Reprogramming funds involves taking them away from previously approved projects that have been deleted or delayed and applying them to a new project that has no funding.

[6]CDR Allan W. Johnson, CEC, USN, "Atlantic Coast Trident Submarine Base," Navy Civil Engineer, XXI (Spring 1981), 5.

[7]Ibid., p. 4.

and the establishment of a new ten-year correction period seemed possible. The current status of the military construction portion of the program is shown below:

CHART 5-3

SHIPYARD MODERNIZATION PROGRAM
($ Million)

FY 80	FY 81*	FY 82+	FY 83	FY 84	FY 85	FY 86	FY 87
$37.3	87.6	67.0	99.0	154.4	176.1	199.2	273.2

Backlog Awaiting Programming in FY 83 and Later:

Portsmouth, VA	Philadelphia, PA	Norfolk, VA	Charleston, SC	Long Beach, CA	Mare Island, CA	Puget Sound, WA	Pearl Harbor, HI	TOTAL
$110.4	92.1	310.9	176.4	191.4	147.1	165.6	106.5	1,300.4

*Approved by Congress +Congressional submission

WATERFRONT FACILITIES PROGRAM

Modern naval ships that were scheduled for completion in the 1980's would have a higher dependence on utilities from shore for cold-iron services and would need more industrial electrical capacity to make repairs in home port than older ships did because of their complexity and design.[8] Few piers built during World War II could provide the cold iron services required by ships designed in the late twentieth century. Hence, new ships had to operate their own engineering plants (boilers and generators) while in port, a practice that led to several undesirable results. In the first place, there was less opportunity to carry out routine maintenance on equipment; and it was very difficult to make emergency repairs. Secondly, operating a ships's boilers and generators in port wasted fuel and decreased the life of the equipment. Finally, more personnel were needed to run a ship while it was in port, which led to a decrease in morale.

Starting in fiscal year 1979, the Navy introduced a new program to insure that sufficient utilities, water depth, and other berthing requirements were available for modern ships at their assigned home ports. Planners made a survey of the various types of ships in the Navy's inventory and of their respective numbers. They compared existing shore support with what the survey indicated was necessary, and projects were then initiated to correct the deficiencies. The planners divided projects to improve berthing into various annual

[8]"Cold-iron services" are steam and electrical power that are furnished to a moored ship from the pier when its own power plant has been shut down.

schedules. When the Waterfront Facilities Program ends in fiscal year 1985, the Command expected to have adequate berthing facilities for all types of modern naval ships.

In fiscal year 1979, $56 million was budgeted for waterfront facilities; but the Office of Management and Budget imposed severe cuts in the 1980 funding; and the Command requested only $31.2 million for 1981. However, Congress advanced a $24 million increment of a wharf planned for Mayport, Florida, from fiscal year 1983 to the fiscal year 1981 plan, which meant that $55.2 was finally approved.

Chart 5-4 shows the funding requested for fiscal year 1982 and the funding levels that Program Objective Memorandum 83 set forth for the period 1983 to 1987. Chart 5-5 contains a detailed list of the projects and the funding planned for each of them.

CHART 5-4 WATERFRONT FACILITIES PROGRAM: FUNDING ($ Million)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
Projects	$47.3	$57.7	$77.4	$86.7	$188.8	$390.1
Planning and Design	----	7.0	11.3	5.5	11.0	23.4
TOTAL	$47.3	$64.7	$88.7	$92.2	$199.8	$413.5

CHART 5-5

BREAKDOWN OF WATERFRONT PROGRAM

LOCATIONS	ITEM	PROJECT NO.	FY 81*	FY 82+	FY 83	FY 84	FY 85
Public Works Center, Pearl Harbor, HI	Mike Wharves	420	$5,200,000				
Naval Submarine Base, New London, CT	Utilities	197	6,100,000				
Naval Station, Charleston, SC	Electrical Utilities	962	1,900,000				
Naval Submarine Base, Pearl Harbor, HI	Pier Utilities	065	24,000,000			$25,800,000	
Naval Air Station, Alameda, CA	Pier Improvements	174		$7,500,000			
Naval Station, Norfolk, VA	Pier 11	947		35,000,000			
Naval Station, Pearl Harbor, HI	Dredge "Magazine" Loch	268		520,000			
Naval Submarine Base, Pearl Harbor, HI	Salt Water Cooling System	053		3,250,000			
Naval Submarine Base, New London, CT	Pier 17	335		1,000,000			
Public Works Center, Norfolk, VA	Utilities	742			$3,900,000		

*Approved by Congress

+Budget submission to Congress

CHART 5-5 BREAKDOWN OF WATERFRONT PROGRAM (Continued)

LOCATIONS	ITEM	PROJECT NO.	FY 81	FY 82	FY 83	FY 84	FY 85
Naval Station, Charleston, SC	Pier Y	144			$3,500,000		
Naval Submarine Base, New London, CT	State Pier Facility	321			5,300,000		
Naval Station, Norfolk, VA	Collimation Tower*	975			250,000		
Naval Amphibious Base, Little Creek, VA	Dredging	321			2,200,000		
Naval Air Station, North Island, San Diego, CA	Electrical System	374			1,850,000		
Naval Station, Charleston, SC	Electrical Distribution Lines	200			8,900,000		
Naval Supply Center Charleston, SC	Pipelines for Piers	147			3,300,000		
Naval Station, Charleston, SC	Mooring Platform	639			6,500,000		
Naval Station, San Diego, CA	Drydock	242			22,000,000		
Various Locations	Planning and Design, Waterfront Facilities	811			7,000,000		

*A collimation tower is a device used to align radar with missiles.

CHART 5-5 BREAKDOWN OF WATERFRONT PROGRAM (Continued)

LOCATIONS	ITEM	PROJECT NO.	FY 81	FY 82	FY 83	FY 84	FY 85
Naval Station, Charleston, SC	Bulkhead Q-R	123				$10,200,000	
Naval Station, Charleston, SC	Pier Z	135				23,600,000	
Naval Station, Norfolk, VA	Dredge Pier 12	107				2,700,000	
Naval Station, Charleston, SC	Pipeline	199				2,800,000	
Naval Station, Mayport, FL	Electrical Substation	820Z				730,000	
Naval Station, Mayport, FL	Salt Water Distribution System	822				1,750,000	
Naval Submarine Base, New London, CT	General Purpose Berthing Pier	084Z				5,500,000	
Naval Coastal Systems Center, Panama City, FL	Air Vehicle Operations Maintenance Facility	284Z				2,650,000	
Naval Submarine Base, Pearl Harbor, HI	General Purpose Berthing Pier	084Z				1,650,000	
Various Locations	Planning and Design, Waterfront Facilities	856				11,300,000	

CHART 5-5

BREAKDOWN OF WATERFRONT PROGRAM (Continued)

LOCATIONS	ITEM	PROJECT NO.	FY 81	FY 82	FY 83	FY 84	FY 85
Public Works Center, San Francisco, CA	North Marginal Wharf	012					$6,450,000
Naval Station, Charleston, SC	Steam Distribution Line	636					15,500,000
Naval Air Station, North Island San Diego, CA	Electrical System	511					4,750,000
Fleet Activities Yokosuka, Japan	Dredging	024					2,450,000
Naval Station, Mayport, FL	Pier Improvements	959					5,800,000
Naval Amphibious Base, Little Creek, VA	Land Acquisition	255					4,850,000
Naval Station, Mayport, FL	Harbor Operations Tug Facility	516					3,850,000
Naval Station, Mayport, FL	Petroleum, Oil, and Lubricants Storage	467					1,600,000
Naval Station, Mayport, FL	Power for D Pier	821					900,000
Naval Station, Norfolk, VA	Small Craft Berth	123					4,050,000

CHART 5-5 BREAKDOWN OF WATERFRONT PROGRAM (Continued)

LOCATIONS	ITEM	PROJECT NO.	FY 81	FY 82	FY 83	FY 84	FY 85
Public Works Center, Norfolk, VA	Electrical Distribution Lines	440					$1,300,000
Naval Amphibious Base, Little Creek, VA	Utilities for Pier FF	256					5,600,000
Naval Amphibious Base, Little Creek, VA	Ammunition Wharf	257					3,600,000
Naval Station, Long Beach, CA	Tug Wharf	167					4,100,000
Naval Station, Norfolk, VA	Various Projects	998					28,940,000
Public Works Center, Pearl Harbor, HI	Electrical Distribution Lines	440					1,300,000
Naval Station, Subic Bay, The Philippines	Leyte Wharf Utilities	788					5,600,000
Various Locations	Planning and Design, Waterfront Facilities	857					5,500,000

CHART 5-5 BREAKDOWN OF WATERFRONT PROGRAM (Continued)

LOCATIONS	ITEM	PROJECT NO.	FY 81*	FY 82+	FY 83	FY 84	FY 85
			$43,300,000	$47,270,000	$64,700,000	$88,680,000	$92,190,000

*Approved by Congress

+Budget submission to Congress

SHORE INTERMEDIATE MAINTENANCE ACTIVITY (SIMA) FACILITIES

The new surface ships coming into the fleet in the 1980's were designed to operate with reduced crews. One result was less manpower to perform maintenance duties. Therefore the new ships, together with most of the existing surface fleet, would be functioning under a maintenance system called engineered operating cycles. The fundamental aim of this system was to extend operating time between major shipyard overhauls and to increase the amount of maintenance performed at the intermediate level.[9] To complicate the problem, newer ships had more complex systems that required periodic maintenance and overhaul.

There were two possible methods of performing the necessary ships' maintenance: do the work in shore activities, or use tender ships. The Navy decided to employ both methods; but the use of tenders, which were more costly than shore facilities and required more manpower, would be held to the minimum essential for wartime deployments. There would be five shore-based SIMA facilities for surface vessels: one each at Mayport, Florida; Pearl Harbor, Hawaii; Norfolk, Virginia (including Little Creek); Charleston, South Carolina; and San Diego, California. The facilities available in the late 1970's at Mayport and Norfolk were completely inadequate and would be replaced. Those at Charleston, Pearl Harbor, and San Diego were better but required some refurbishment and addition. The Navy would need new equipment to maintain modern shipboard systems and to accommodate the increased workload. Initially the Command had not planned any military construction for Pearl Harbor, since an existing torpedo shop and other buildings appeared adequate for maintenance. However, a decision to perform new work there was made during the framing of Program Objective Memorandum 82. POM 82 also added money to the program to complete maintenance facilities at two submarine bases.

The planners scheduled construction and modernization of facilities at the various locations in the following manner:

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[9]Intermediate maintenance can be defined as a level of maintenance greater than that performed by the ship's company but less complete than a major overhaul.

CHART 5-6 SHORE INTERMEDIATE MAINTENANCE ACTIVITY FACILITIES

Fiscal Year		
1979	San Diego, CA (1st increment)	$6,000,000
1980	Mayport, FL	$10,300,000
1981	Norfolk, VA	15,500,000
	Charleston, SC	7,100,000
		$22,600,000
1982	Little Creek, VA	8,400,000
	New London, CT (submarine base)	3,300,000
	Pearl Harbor, HI (submarine base)	3,750,000
		$15,450,000
1983	Pearl Harbor, HI	6,100,000
	San Diego, CA (2nd increment)	12,200,000
		$18,300,000

The Command expected that energy conservation, pollution abatement, Trident construction, shipyard modernization, and the refurbishing of waterfront facilities would continue to receive great attention. The Military Construction Programming staff would provide useful and pertinent information for the Commander of NAVFAC when he went before Congress to justify the Command's programs. The staff would also make regular contact with the major claimants and OPNAV resource sponsors and would remain the focal point for the approval of all urgent exigent minor construction projects.

CHAPTER VI

ENGINEERING AND DESIGN

Designing the Navy's shore facilities and writing engineering specifications for them were fundamental aspects of the Command's mission. Some construction projects were designed in-house, either because they were being drawn up for new types of facilities or because their sophistication required close control. Other projects were designed by private architectural-engineering firms under contract to the Navy. The engineering field divisions executed or supervised most design work, while Command headquarters provided standardized technical drawings and criteria, and set general design standards for the field divisions to follow. In addition, headquarters monitored the work that its field staffs produced.

DESIGN GUIDANCE

Program to Improve Security for Arms, Ammunition, and Explosives

In order to comply with new DOD requirements, the Navy initiated its Arms, Ammunition, and Explosives Security Upgrade Program in fiscal year 1980. The objective of this program was to improve the security measures involved in the storage of arms and ammunition. It was a long-term program that the Navy expected to continue through fiscal year 1986. The program manager defined Command participation in the construction phase of the program and focal points for the program were established at each engineering field division.[1] A research, development, test and evaluation program was developed at the Civil Engineering Laboratory to evaluate new cost effective techniques to improve structural physical security. The Naval Sea Systems Command, which was administering the program, then provided funding and personnel; and a training school was conducted for survey team members from NAVFAC and the Naval Sea Systems Command. Site surveys began during the last quarter of fiscal year 1980 and would continue through fiscal year 19681.

Magazines

The Engineering and Design Program also began revising the specifications and drawings for steel and concrete arch-type magazines.[2] Improvements in blast resistance and waterproofing were introduced, and new physical security features were incorporated.

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[1]The Arms, Ammunition, and Explosives Security Upgrade Program had two phases. One involved the construction of better storage facilities, and the other pertained to improved guard forces and inventory control.

[2]An "arch type" magazine is one with an arch-shaped roof.

New Criteria for Underground Heat-Distribution Systems

New criteria for underground heat-distribution systems in federal structures went into effect in April.[3] These criteria superseded the old military tri-service regulations. Like the old regulations, the new federal criteria required that a reviewing committee approve underground heat systems before they were installed. The Navy chaired the committee which would approve manufacturer's systems. In addition to the Navy the committee included representatives of the Army, the Air Force, the General Services Administration, the Veteran's Administration, and the National Bureau of Standards.

The government instituted its new criteria in order to obligate manufacturers of systems to exercise stricter supervision during the installation of heating systems and to increase the number of types that were acceptable.[4] It expected that these changes would increase the competition between suppliers and result in the procurement of more reliable systems at a lower cost.

At the end of April the reviewing committee awarded Nova Piping Systems the first letter of acceptability under the new rules, for a heating system which featured an asphalt-extended polyurethane coating on a steel outer casing. Nova Pipping received another approval in July for a system employing a conduit made of reinforced thermosetting-resin plastic. In August the committee issued a letter of acceptibility for a system that utilized a coated steel-piped conduit to Perma-Pipe, Inc.

Standards for Signs on Navy Buildings

In 1980 the Command began development of a standards manual which would provide guidelines for designing all signs used at naval facilities.[5]

Miscellaneous Design Manuals

Design manual DM-24, Helium Plants and Storage, was printed and distributed in 1980. This manual superseded chapter 2 of DM-24, published in June 1975. DM-8, Fire Protection Engineering, as the first section of a new manual on interior design criteria. The guide was a revision of DM-1.10 and included updated carpet flammability criteria. The Engineering and Design Program expected to add new sections periodically in order to complete the manual, beginning with DM-14.1, Interior Design Guide, which was scheduled for publication in 1981.

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[3]The standards applied to prefabricated and pre-engineered systems. A "pre-engineered" system is one built according to specifications drawn up and published by a private business that manufactures the necessary parts.

[4]Prior to this change, sites were classified as having either high or low water tables. By expanding the classification system to include four types of sites (very dry, dry, wet, and very wet), the planners allowed the utilization of a greater range of materials in building heat distribution systems. Expensive materials that resist corrosion are unnecessary in areas where there is little moisture in the soil.

[5]This project was a joint endeavor of the Engineering and Design and Planning and Real Estate Programs.

In addition, the Commend printed and distributed design manual 38.5, Towing Non-Self-Propelled Floating Structures, which superseded chapter 2 of the old DM 38.5 (August 1975). Finally, the U.S. Army decided to publish Navy design manual 38.4, Pile-Driving Equipment, as a joint Army-Navy venture.

Study of Minium Safe Radius for Curves in Railroad Tracks

In September the Engineering and Design staff received a completed architectural-engineering study of the minimum safe radius of curves in Navy railroad tracks. The study examined the many factors involved when a train of railroad cars attempts to negotiate a section of tracks with a sharp curve. A computer analysis was used to predict whether or not a train would complete various curves safely. The results of this study would be incorporated into a revision of DM-5.6, Trackage.

NAVFAC Master Construction Specifications File

At the end of 1980 there were 272 guide specifications in the "TS" series (i.e., technical specifications), and the Command had approved 106 guide specifications during the year. The Building Research and Advisory Board of the Federal Construction Council had published 130 federal construction guide specifications, 77 of which were developed by the Command. Twenty-one of these specifications were issued during 1980.

The average age of the 272 guide specifications in the Command's Master Construction Specifications File was 2.3 years. These specifications were used by architects, engineers, and field activities to prepare criteria for naval construction projects. Several other government agencies and some private businesses had adopted some or all of NAVFAC's master construction specifications. These organizations included the U.S. Coast Guard, the General Services Administration (Public Buildings Service), and CONRAIL.

Guide Specifications First Published in 1980

The Command developed and published four specifications dealing with the procurement, installation, and testing of various systems of foundation piles and caissons for underwater construction: TS-02325, "Pressure-Injection Footings"; TS-02372, "Drilled Foundation Caissons (Piers)"; TS-02360.1, "Round Timber-Concrete Composite Piles"; and TS-02362.3, "Auger-Placed Grout Piles."

NAVFAC Guide Specification TS-09873, "Exterior Coating System for Welded Steel Storage Tanks Used in Petroleum Service, " was issued in 1980. It specified coatings for newly constructed steel tanks in cases where coatings were not applied during initial assembly. This specification covered surface preparation, inorganic zinc primer, and vinyl coatings used over the zinc primer. The specification could also apply to maintenance of the storage tanks in situations where all previous coatings had been removed by abrasive blasting.

The Command approved NAVFAC Guide Specification TS-15805, "Industrial Ventilation and Exhaust." This specification was a new document developed to cover systems for handling dust, fumes, toxic gases, and similar problems. New NAVFAC Guide Specifications TS-15840, "Ductwork and Accessories," and TS-15822, "Evaporative Cooling Systems," were also approved. These specifications partly superseded NAVFAC Guide Specification TS-15802, dated November 1972.

The Command wrote a guide specifications for solid-state generator control systems that included 60 to 750 kilowatt standby generator sets. Th specifi- cation described automatic paralleling, synchronizing, and control devices re- quired for generators serving important communications and data-processing equipment.

Guide Specifications Revised in 1980

Using the findings of an engineering investigation project which developed better installation procedures and inspection techniques, the Engineeri and Design Program revised TS-02910, "Welding Crane Rails, Thermite Self-Preheat Method," in 1980.[6] The new inspection techniques provided the first reliable
criterion for locating poorly welded crane rails under the thermite method. The Command also revised TS-14337, "Cranes, Overhead Electric, Single Girder Underrunning," and TS-01661, "Testing and Balancing Air and Water System" to conform to the three-part format of the Construction Specifications Institute (CSI).[7] The new version was issued in July.

The Command's technical manager for concrete regulations revised Guide Specification TS-03361, "Shotcrete."[8] The latest edition of this specification, which accommodated all comments from industry and the engineering fi divisions, was approved in September.

The Command revised Guide Specification TS-15401, "Plumbing Systems," a Guide Specification TS-16530, "Exterior Lighting," to conform to the CSI format, and the applicable criteria of the American National Standards Institute instead of military specifications.[9]

The Command also revised several specifications. Guide Specification TS-15901, "Space Temperature Controls," was revised to include controllers, transmitters, and sensors for interfacing of automatic space temperature systems into new, existing and future Energy Monitoring and Control Systems. Guide Specification TS-15812 was rewritten and approved as Guide Specificati TS-15803, "Warm-Air Heating Systems." Guide Specification TS-13981.1, "Sola Energy Systems, Flat-Plate Collectors (Liquid Types)," of September 1979 was revised to include comments received during the federal construction guide specifications coordination review. Guide Specification TS-15250 "Insulatio of Mechanical Systems," and NAVFAC Guide Specification NFGS-15011, "General Requirements," were also revised.

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[6]For a definition of the term "engineering investigation," look in the Engineering and Design Management section of this chapter.

[7]The Construction Specifications Institute is a private organization that ha developed a standardized three-part format for writing construction specifica tions. This format consists of a general description of the project, a list materials, and a set of directions for building the project.

[8]Shotcrete consists of mortar or concrete which is conveyed through a hose and pneumatically projected at high velocity onto a surface.

[9]The American National Standards Institute is another private organization which sets standards for the construction industry.

The Electrical Engineering Branch was preparing revisions to the DOD electrical distribution guide specifications for military family housing.[10] The revisions would include recommendations for the design of primary-distribution, direct burial cables and cathodic protection systems. Difficulties that the Navy had experienced at the Bremerton, Washington, Trident submarine base served as the catalyst for these revisions. The Electrical Engineering Branch planned to forward the changes to the Office of the Chief Engineer before March 1981.

The following medical equipment type specifications were revised and issued in fiscal year 1981:

1. TS-11601 -- "Laboratory Equipment and Fume Hoods"
2. TS-11700 -- "General Requirements for Medical Equipment"
3. TS-11702 -- "Miscellaneous Medical Equipment"
4. TS-11713 -- "Surgical Lighting Fixtures"
5. TS-11716 -- "Hydrotherapy Equipment"
6. TS-11720 -- "Stills and Associated Equipment"
7. TS-11722 -- "Sterilizers and Associated Equipment"
8. TS-11722 -- "Washing Equipment"
9. TS-11730 -- "Dental Equipment"
10. TS-11757 -- "Radiographic Darkroom Equipment"
11. TS-11770 -- "Government-Furnished and Contractor-Installed Medical Equipment"
12. TS-11798 -- "Prefabricated Audiometric Booths"
13. TS-13092 -- "X-Ray Shielding"

Publication of a New Military Standardization Document

MIL-STD 1691B, "Military Standard Construction and Material Schedule for Military Medical and Dental Facilities," was issued in 1980. Military standardization documents are reports that establish standardized engineering and technical processes for the construction of military facilities.

Medical Facilities Layout Plates

The Command's Western Division completed the revision of 150 medical facilities layout plates in September. Layout plates are drawings which illustrate standard medical equipment arrangements for specific areas of medical facilities.

Shore-to-Ship Power

NAVFAC awarded an engineering investigation contract to the Whitman Requardt Company of Baltimore, Maryland, for drawings and specifications related to shipyard electrical distribution systems.

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[10]Department of Defense 4270.21.

New NAVFAC Instruction

The Command issued NAVFAC Instruction 6260.1 to disseminate information on the potential health hazards associated with urea-formaldehyde foam insulation, which was employed in many types of Navy housing. The instruction contained recommendations for activities that planned to use this product.

Revised NAVFAC Instructions

NAVFAC issued Instruction 11320.17B to implement a regulation from the Chief of Naval Material.[11] The instruction brought the fire protection engineering program up to date and permitted new fire hazard inspection cycles at shore activities.

NAVFAC Instruction 4862.5A, which replaced Instruction 4862.5 of February 1978, was issued in July. This instruction communicated revised guidelines for projects to control industrial waste water. It recommended a thorough preliminary study to address several important factors. Because the treatment of waste water often creates hazardous sludge, the instruction advised naval activities to develop methods to control the generation of this material and to dispose of the harmful sludge which was unavoidably produced. The instruction also directed activities to evaluate all feasible ways of treating waste water.

NAVFAC Instruction 4862.5A also furnished advice for the design, post-award construction surveillance, and operation of these projects. It required all industrial waste-water treatment projects to be reviewed by headquarters several times during the design process.[12] Finally, the instruction contained guidance on selecting design architects, engineers, and equipment; on training personnel; on obtaining funding; and on communicating important information to Command headquarters and the engineering field divisions.

Revision of Standard Drawings

NAVFAC's standard drawings for electrical distribution on piers, 1402749 to 1402751, were revised to list the new cable and conduit sizes required by the National Electrical Code. The Engineering and Design staff increased receptacle ratings on the new drawings. In addition, the staff added transformer fans, battery chargers, and new electrical power and control circuits. These drawings were scheduled for distribution to the engineering field divisions early in 1981.

New Periodic Report

The Engineering Systems and Cost Branch created a new periodic report entitled Economic Outlook to help cost engineers assess the fluctuating costs of contracting out building projects. The staff expected to publish an issue of this report for each quarter of the calendar year.

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[11] Naval Material Command Instruction 11320.6A

[12] The instruction mandated reviews at the 35 percent, the 60 percent, and the final design stages.

FACILITIES SURVEYS

Fire-Protection Engineering Surveys

The Command carried out fire-protection engineering surveys at naval activities around the world within specified time intervals (between three and six years, depending upon the type of facility). Of the 576 surveys that were scheduled for 1980, NAVFAC actually completed 520.

Airfield Pavement Condition and Friction Surveys

During 1980 the program to measure runway condition and friction continued, and the Command made surveys at 24 Navy and Marine Corps air stations. The Engineering and Design Program completed reports for 19 of these activities during the year.

PLANS AND SPECIFICATIONS

Value Engineering

In the period under discussion, the Command built approximately $1.5 billion worth of facilities and designed future facilities valued at nearly $1.1 billion. The objective of the Command's value engineering program was to help provide required construction processes at the lowest cost to the Navy. The Program accomplished this goal through four types of activities: value-engineering task teams at the 35 percent design review, individual value-engineering analyses of projects prior to the award, value-engineering change proposals from construction contractors, and value-engineering change proposals from government employees after construction began. The results were reported on the basis of fiscal years which concluded on 30 September. In fiscal year 1980, the savings significantly exceeded the Command's goal--2 percent of the estimated cost of facilities designed that year. This achievement reflected a larger reliance on the team-study concept, both on in-house team studies and contract studies.

CHART 6-1 VALUE ENGINEERING SAVINGS, FISCAL YEAR 1980

Activity	Value Engineering Proposals During Design	Contractor Proposals	Fed. Employees' Suggestions During Construction
Northern Division	$2,805,400	$80,700	$12,000
Chesapeake Division	2,397,400	21,300	- - -
Atlantic Division	17,151,200	30,400	- - -
Southern Division	3,753,100	82,500	263,200
Western Division	5,953,300	79,700	- - -
Pacific Division	4,299,300	- - -	- - -
TOTAL	$36,359,700	$294,600	$275,200

Hyperbaric Certification Program

The Hyperbaric Certification Program was instituted to insure the safety of hyperbaric facilities.[13] Because of the emphasis placed on operating in deep ocean areas and the potential hazards which existed when a hyperbaric facility was functioning, the Navy placed a high value on this program. Charts 6-2 and 6-3 list the hyperbaric systems that the Command inspected and certified in 1980.

[13] A hyperbaric facility produces pressures greater than the normal pressure of the atmosphere and thus simulates the conditions that exist deep below the ocean's surface.

CHART 6-2 CERTIFIED SYSTEMS, 1980

System/Activity/Location	Date Certified	Operational Limits
Unmanned Pressure Test Vessel No. 4 Hydro-Space Lab. (Bldg. 108) Naval Control Systems Center Panama City, FL	12 May 1980	1,000 pounds per square inch (psi)
Recompression Chamber Special Forces Swim School Key West, FL	1 Jun 1980	165 feet of seawater (fsw)
Two-Lock Aluminum Recompression Chamber Underwater Demolition Training Team 21 (Bldg. 3031) Little Creek, Norfolk, VA	16 Jun 1980	165 fsw
Surface-Supported Diving System Explosive Ordnance Disposal School (Bldg. 901) Indian Head, MD	1 Oct 1980	30 fsw
Recompression Chamber Portsmouth Naval Shipyard Portsmouth, NH	1 Aug 1980	165 fsw
Surface-Supported Diving Systems Diving and Salvage School, Tanks 1, 2, and 3 Panama City, FL	10 Nov 1980	20 fsw
Surface-Supported Diving System Diving and Salvage School, Pierside Station Panama City, FL	10 Nov 1980	100 fsw
Recompression Chamber, Naval Aerospace Installation (Bldg. 625A) Naval Air Station Pensacola, FL	1 Dec 1980	165 fsw
Deep Research Chamber Complex Duke University Durham, NC	1 Nov 1980	3,500 fsw

CHART 6-3

RECERTIFIED SYSTEMS

System/Activity/Location	Date Recertified	Operational Limits
Two-Lock Aluminum Recompression Chamber, Experimental Diving Unit Naval Coastal Systems Center Panama City, FL	1 Feb 1980	165 feet of seawater (fsw)
Three-Lock Recompression Chamber Naval Submarine School Groton, CT	1 Apr 1980	200 fsw
Two-Lock Aluminum Recompression Chamber Naval Submarine School Groton, CT	1 Apr 1980	165 fsw
Tower Training Lock at 50 ft. Naval Submarine School Groton, CT	1 Apr 1980	75 fsw
Surface-Supported Diving System Naval Aviation School Command (Bldg. 671) Pensacola, FL	1 Mar 1980	15 fsw
Surface-Supported Diving System Naval Aviation School Command (Bldg. 672) Pensacola, FL	1 Mar 1980	15 fsw
Surface-Supported Diving System Explosive Ordnance Disposal School (Bldg. 901) Indian Head, MD	17 Mar 1980	30 fsw
Equipment Test Chamber Experimental Test Facility Naval Coastal Systems Center Panama City, FL	1 Jun 1980	675 fsw
Recompression Chamber Autec Range Andros Island, the Bahamas	12 Jun 1980	165 fsw

CHART 6-3 RECERTIFIED SYSTEMS (continued)

System/Activity/Location	Date Recertified	Operational Limits
Recompression Chamber Naval Special Warfare Group 1 Coronado, CA	12 Jun 1980	165 fsw
Research Recompression Chamber No. 2 Naval Medical Research Institute (Bldg. 119) Bethesda, MD	1 Dec 1980	300 fsw
Recompression Chamber Naval Special Warfare Group 2 Roosevelt Roads, Puerto Rico	11 Aug 1980	165 fsw
Recompression Chamber Underwater Warfare Engineering Station (Bldg. 6) Keyport, WA	25 Sep 1980	165 fsw
Research Chamber Naval Explosive Ordnance Disposal Facility Indian Head, MD	27 Oct 1980	300 fsw
Research Chamber Complex Duke University Durham, NC	1 Nov 1980	1,000 fsw
Research Chamber Complex No. 1 Naval Medical Research Institute (Bldg. 119) Bethesda, MD	1 Dec 1980	300 fsw
Research Chamber Complex University of Pennsylvania Philadelphia, PA	1 Nov 1980	1,800 fsw

Certification of Army Recompression Chamber

At the request of the Navy Experimental Diving Unit, the Command's System Certification Authority made an on-site inspection and test of the Army's double-lock recompression chamber at the Special Forces Swim School in Key

West, Florida. When the facility complied with various recommendations made by the Certification Authority, it was approved for use by Navy personnel.

Program for Certification of Dry-Docking Facilities

This highly valued Navy program established safe operational limits for facilities which dry-docked Navy ships. Charts 6-4, 6-5, and 6-6 list the facilities the Command inspected and recommended for certification in 1980.

CHART 6-4 GRAVING-DOCK FACILITIES RECOMMENDED TO NAVAL SEA SYSTEMS COMMAND FOR CERTIFICATION

Facility/Activity/Location	Date	Operational Limits
Dry Dock No. 1 Pearl Harbor Naval Shipyard Pearl Harbor, HI	7 Dec 1979	60,000 long tons (lt)
Dry Dock No. 3 Pearl Harbor Naval Shipyard Pearl Harbor, HI	7 Dec 1979	11,250 lt
Dry Dock No. 1 Charleston Naval Shipyard Charleston, SC	9 Jan 1980	Interim Certification*
Dry Dock No. 3 Charleston Naval Shipyard Charleston, SC	9 Jan 1980	Interim Certification*
Dry Dock No. 5 Charleston Naval Shipyard Charleston, SC	9 Jan 1980	Interim Certification*
Dry Dock No. 1 Philadelphia Naval Shipyard Philadelphia, PA	28 Mar 1980	4,000 lt
Dry Dock No. 2 Philadelphia Naval Shipyard Philadelphia, PA	28 Mar 1980	14,000 lt

*These dry docks were certified only to berth specific ships that were of relatively light tonnage until the Command was able to review their inspection reports.

CHART 6-4 GRAVING-DOCK FACILITIES RECOMMENDED TO NAVAL SEA SYSTEMS COMMAND FOR CERTIFICATION (continued)

Facility/Activity/Location	Date	Operational Limits
Dry Dock No. 12 Newport News Shipbuilding & Drydock Company Newport News, VA	15 Apr 1980	85,000 lt
Dry Dock No. 3 Philadelphia Naval Shipyard Philadelphia, PA	24 Apr 1980	25,000 lt
Dry Dock No. 1 Mare Island Naval Shipyard Vallejo, CA	20 Jun 1980	14,000 long tons (lt)
Dry Dock No. 2 Mare Island Naval Shipyard Vallejo, CA	20 Jun 1980	25,000 lt
Dry Dock No. 1 Unified Port of San Diego San Diego, CA	2 Jul 1980	33,000 lt
Dry Dock No. 2 Pearl Harbor Naval Shipyard Pearl Harbor, HI	25 Jul 1980	60,000 lt
Dry Dock No. 4 Pearl Harbor Naval Shipyard Pearl Harbor, HI	25 Jul 1980	92,000 lt
Dry Dock No. 1 Long Beach Naval Shipyard Long Beach, CA	25 Jul 1980	58,000 lt
Dry Dock No. 4 Philadelphia Naval Shipyard Philadelphia, PA	5 Sep 1980	35,000 lt
Dry Dock No. 5 Philadelphia Naval Shipyard Philadelphia, PA	5 Sep 1980	35,000 lt
Dry Dock No. 2 Long Beach Naval Shipyard Long Beach, CA	5 Sep 1980	38,000 lt

CHART 6-4 GRAVING-DOCK FACILITIES RECOMMENDED TO NAVAL SEA SYSTEMS COMMAND FOR CERTIFICATION (continued)

Facility/Activity/Location	Date	Operational Limits
Dry Dock No. 3 Long Beach Naval Shipyard Long Beach, CA	5 Sep 1980	38,000 lt
Dry Dock No. 3 Norfolk Naval Shipyard Norfolk, VA	29 Sep 1980	17.86 long tons per foot (lt/ft)
Basin No. 1 National Steel Shipbuilding Company San Diego, CA	29 Sep 1980	15.18 lt/ft
Dry Dock No. 4 Triple A Shipyard Hunters Point San Francisco, CA	29 Sep 1980	91,400 lt

CHART 6-5 MARINE RAILWAY FACILITIES RECOMMENDED TO NAVAL SEA SYSTEMS COMMAND FOR CERTIFICATION*

Facility/Activity/Location	Date	Operational Limits
Marine Railroad No. 1 Balboa Boats Wilmington, CA	21 Dec 1979	117.5 long tons
Marine Railroad No. 1 Pacific Drydocks Oakland, CA	21 Dec 1979	945 lt

*A marine railway performs the same function as a dry dock--i.e., it gets ships out of the water for modifications or repairs.

CHART 6-5 MARINE RAILWAY FACILITIES RECOMMENDED TO NAVAL SEA SYSTEMS COMMAND FOR CERTIFICATION (continued)

Facility/Activity/Location	Date	Operational Limits
Marine Railroad No. 1 San Pedro Boat Company San Pedro, CA	21 Jan 1980	150 lt
Marine Railroad No. 1 Davis Boatworks Newport News, VA	11 Mar 1980	75 lt
Marine Railroad No. 1 Blyth Marine Suffolk, VA	11 Mar 1980	60 lt
Marine Railroad No. 1 Metal Trades Company Hollywood, SC	2 Mar 1980	446 lt
Marine Railroad No. 1 Barbour Boat New Bern, NC	18 Apr 1980	400 lt
Marine Railroad No. 1 Al Larson Boat Shop Terminal Island, CA	5 Jun 1980	200 lt
Marine Railroad No. 3 Al Larson Boat Shop Terminal Island, CA	5 Jun 1980	480 lt
Marine Railway No. 4 Al Larson Boat Shop Terminal Island, CA	5 Jun 1980	100 lt
Marine Railway No. 1 Sand Blasters John Island, SC	11 Jun 1980	670 lt
Marine Railway No. 1 Dillingham Shipyard Honolulu, HI	2 Jul 1980	1,400 lt
Marine Railway No. 1 Metal Trades Company Hollywood, SC	17 Jul 1980	893 lt

CHART 6-6 VERTICAL LIFT FACILITIES RECOMMENDED FOR CERTIFICATION*

Facility/Activity/Location	Date	Operational Limits
Vertical Lift No. 1 Thunder Bolt Industries Savannah, GA	18 Apr 1980	350 long tons
Vertical Lift No. 1 Tracore Marine Fort Lauderdale, FL	11 Jun 1980	4,200 lt

*Vertical lifts also remove ships from the water for construction or repairs.

Medical Facilities Design Office

During 1980, the Medical Facilities Design Office completed concept plans for two projects--the medical and dental clinic in Kings Bay, Georgia; and the medical and dental clinic at the Naval Station, San Diego, California. The Deputy Assistant Secretary of Defense (Installations and Housing) approved both plans.

The one-thousand-bed fleet hospital was a prefabricated portable facility that could be assembled anywhere in the world on very short notice.[14] The Medical Facilities Design Office completed the concept plans for this hospital in 1979. Following completion of the plans the Civil Engineer Support Office (CESO), Port Hueneme, California, began the design of a prototype that would be constructed for test and evaluation purposes.

The actual testing took place at Twentynine Palms, California, during the summer of 1980. After the results were analyzed, the Command decided to make a number of changes in the hospital's design and expand its capabilities. Because CESO lacked a large enough staff to meet these new requirements and still carry out its regular functions, the remaining design work was contracted out to a private architectural-engineering firm.

[14]More information about this hospital is available on pages 71-72 and 137 of the 1979 Command History.

ENGINEERING AND DESIGN MANAGEMENT

Post-Occupancy Evaluation Program

The Command performed post-occupancy evaluations on seven newly constructed facilities in 1980: the dispensary and dental clinic at the Naval Air Station, Brunswick, Maine; the Navy Exchange facility at the National Naval Medical Center, Bethesda, Maryland; a berthing pier (second increment) at the Naval Station, Norfolk, Virginia; the enlisted dining facility at the Marine Corps Base, Camp Lejeune, North Carolina; an incinerator at the Naval Station, Mayport, Florida; an industrial waste treatment plant at the Naval Weapons Support Center, Crane, Indiana; and an oily waste treatment plant at Naval Air Station, North Island, California. The evaluations provided valuable feedback that the Command used to revise construction standards. Many deficiencies were corrected under contractor warranties or with residual project funds.

Earthquake Safety Program

In 1980, the Command began a major effort to improve earthquake safety. This program followed several years of studies and pilot projects which identified the kinds of problems that earthquakes might pose for naval facilities and which developed a methodology for the investigation. About half of the facilities located in Seismic Zones Three and Four received a preliminary examination.[15] The Engineering and Design staff determined that approximately 20 percent of these facilities merited further study, and by the end of 1980, about half of the follow-up investigations had been completed. The staff also made a preliminary study of the Memphis Naval Hospital.

Engineering Investigation Program

The Engineering Investigation Program provided money that allowed the Command to utilize the technical expertise of engineers in other parts of the federal government and private industry through grants for specific engineering projects. During 1980, the program funded 31 projects for a total of $2,223,750. The projects ranged from general ones, such as resolving common problems in the design and construction of waterfront structures; to more specific ones, such as conducting a water quality study at Diego Garcia in the Indian Ocean. This program also funded outside experts who contributed to the earthquake safety studies.

NAVFAC-AIA Biennial Awards Program for Distinguished Architectural Achievement

In accordance with the procedures set forth in NAVFAC Instruction 5061,2F (April 1980), the 1980 Naval Facilities Engineering Command - American Institute of Architects jury selected seven first honor awards and five awards of merit from ther 55 entries received in the biennial competition for distinguished architectural achievement. The jury consisted of the following

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[15]Geologists divide the earth into seismic zones according to the amount of earthquake activity in a given geographical region. Areas in Seismic Zone One experience almost no activity from movement of the earth's crusts, while those in Zone Four are subject to relatively frequent and severe earthquakes.

individuals: John Bower, Jr., Fellow of the American Institute of Architects (AIA), Philadelphia, Pennsylvania; Dale Durfee, AIA, Atlanta, Georgia; and Paul Davidson, student of architecture, Houston, Texas. They chose the following projects for awards:

First Honor Awards

1. Surface Warfare Officers' School
Newport, RI (Northern Division)
Architects: Northern Division, Naval Facilities Engineering Command

2. Chapel and religious education complex
Pearl Harbor, HI (Pacific Division)
Architects: Group 70 - Francis S. Oda, AIA

3. Recreation facility, Naval Weapons Station, Earle
Colts Neck, NJ (Northern Division)
Architects: Geddes, Brecher, Qualls, Cunningham

4. Submarine training building, Submarine Support Facility
San Bruno, CA (Western Division)
Architects: Delawie, Macy, and Henderson, AIA

5. Uniformed Services University of the Health Sciences
Bethesda, MD (Chesapeake Division)
Architects: Ellerbe/Dalton, Dalton, Little; Newport, RI

6. Trident bachelor officers' quarters, Trident support site, Bangor
Bremerton, Washington (Trident)
Architects: TRA Architects

7. Personnel services complex, Naval Submarine Base, Bangor
Bremerton, WA (Trident)
Arthitects: Campbell-Yost-Grube P.C.

Awards of Merit

1. Yap Hospital
Yap Island, Western Caroline Islands (Pacific Division)
Architects: Mackinlay/Winnacker/McNeil

2. Medical and Dental Clinic, Navy Regional Medical Center, Jacksonville
Naval Air Station, Jacksonville, FL (Southern Division)
Architects: Stevens/Walton and Associates, Inc.

3. Three hundred and eighty-man bachelor enlisted quarters,
U.S. Navy Submarine Base
New London, CT (Northern Division)
Architects: Jeter, Cook, and Jepson, Architects P.C.

4. New entrance and corridor renovations, Naval Air Development Center
Warminster, PA (Northern Division)
Architects: Northern Division, Naval Facilities Engineering Command

5. Consolidated mess, Naval Submarine Base, Bangor
Bremerton, WA (Trident)
Architects: Raymond Salmi Associates

CONSULTATION

Caisson Repairs on Dry Dock No. 2., Portsmouth, New Hampshire

The Engineering and Design staff conducted an investigation of a damaged caisson on a dry dock at the Naval Shipyard, Portsmouth, New Hampshire. After a careful evaluation, they recommended specific repairs.

Inspection of Petroleum Facilities

In 1980, the Engineering and Design Program made inspections of petroleum facilities at three separate locations. The sites included the Naval Air Station and Naval Air Station Annex, Bermuda; the Naval Station and the Naval Air Station, Guantanamo Bay, Cuba; and the Marine Corps Base and Marine Corps Air Station, Camp Lejeune, North Carolina. These inspections were prompted by inefficient operations, environmental and safety violations, and obsolescence of the facilities. The staff prepared a detailed report for each site which outlined the deficiencies and made recommendations for repairs and modernization.

Underwater Welding School

During 1980, the Command produced plans for an underwater welding school. At the end of the year facilities were being readied at the Norfolk Naval Shipyard, and the Naval Material Command was in the process of reviewing the curriculum. The Navy expected to send fleet divers and students from the Diver Training School to this intensive training course. The Command had recently developed and patented a new waterproofing technique utilizing a special olyfen tubing, which would have useful applications in underwater welding.

Design Review for a New Aircraft Fueling System

The staff completed a review of the final designs for a new type of high-speed aircraft fueling system planned for installation at the Marine Corps Air Station, Cherry Point, North Carolina; the Naval Air Facility, Sigonella, Italy; and the British Royal Air Force Installation, Machrihanish, Scotland. The Engineering and Design Program furnished the Navy design agent for each site with sketches, comprehensive comments, and detailed recommendations to simplify and improve these systems.

Petroleum Tank-Lining Projects

Command personnel visited seven different places to inspect large above-ground and underground petroleum storage tanks. The locations included fuel terminals at Pearl Harbor, Hawaii; Craney Island, Virginia; San Pedro, California; Charleston, South Carolina; Point Loma, California; the Naval Air Station in Memphis, Tennessee; and the Marine Corps Base in Quantico, Virginia. The inspectors made recommendations for repairing the various tanks and providing appropriate lining systems for corrosion protection, improved fuel

quality, reduction of future maintenance costs, and the prevention of leakage.

Dry Dock No. 3, Mare Island Naval Shipyard

In the late 1970's, the walls of dry dock no. 3 at Mare Island Naval Shipyard in northern California needed strengthening. The shipyard hired a private engineering firm to study the dry dock and propose a remedy for its problem. This firm recommended that the exterior surface of the walls be reinforced with heavy steel. Before proceeding with repair work, the shipyard decided to call in the Command's Chief Engineer for consultation. The Chief Engineer determined that the method the private company had proposed was neither practical nor economical. His evaluation saved the Navy a significant amount of money, and at the end of 1980, the Office of the Chief Engineer was working on a better solution to the drydock problem.

Petroleum, Oil, and Lubricant Tanks at Red Hill, Hawaii

The Engineering and Design staff provided consultation to the Pacific Division and to the Public Works Center, Pearl Harbor, on the welding methods and procedures used in repairing petroleum tanks.

Construction of a Steam Line at North Island

The Engineering and Design staff also rendered advice to the Officer in Charge of Construction, North Island, San Diego, California, during his dispute with a contractor over the fabrication and inspection requirements for an extensive steam-line project. Their assistance resulted in the saving of a considerable amount of time and money.

Expert Testimony in Investigation of Plane Crash

Staff members gave expert testimony to naval authorities investigating the crash of a marine plane at the Naval Air Station in South Weymouth, Massachusetts. The hearing board concluded that the Command's specially designed arresting-gear pennant system did not cause the accident.[16]

PROFESSIONAL DEVELOPMENT

Professional Registration and Certification

The Command continued to strongly encourage professional registration. About two-thirds of the officers in the Civil Engineer Corps were registered engineers in 1980, a number which represented a small decrease since the previous year. About 77 percent of the civilian engineers employed by the Command were registered, a figure which also constituted a small decline. Personnel specialists made a survey of all eligible but unregistered

[16]An arresting-gear pennant is a cable which loops over a hook that protrudes from the underside of a landing plane and halts it. Conventional arresting-gear pennants have a tendency to abrade the surface of runways. The Command designed a system, with a metal plate placed between the landing strip's surface and the pennant, which would not erode the runway.

professionals who worked for the Command and asked them to state their intentions.

Despite NAVFAC's continued emphasis on certification of engineering technicians, the percentage of certified personnel fell from 31.3 percent in 1979 to 29 percent in 1980. An evaluation of the certification program was planned for 1981.

Intern-Architect Development Program of the Civil Engineer Corps

The Intern-Architect Development Program was inaugurated in 1977 to help Civil Engineer Corps architects achieve professional registration. One of the requirements for registration was practical experience gained under a direct supervision of a registered architect. The Command anticipated that there would be enough registered architects in the Civil Engineer Corps by 1983 so that all non-registered Civil Engineer Corps architects could be given assignments that would allow them to gain the requisite experience necessary to qualify for state registration examinations. During 1980 all engineering field divisions had their third intern, and some were in the process of training their fourth. Many of the interns had successfully negotiated the qualifying examination, which was the first of two required tests. Registration of Civil Engineer Corps officers as architects increased by 4.3 percent during 1980.

The American Institute of Architects (AIA) and the National Council of Architectural Registration Boards continued to endorse the Intern-Architect Development Program. Both organizations expressed the judgment that the Command's intern program was an exemplary one and recommended it as a model for other organizations. In 1980 the AIA added a new subject to its own intern development plan, energy-conscious design. The Command was proud that this topical subject was already part of its own curriculum.

Membership and Participation in Technical Organizations

During 1980 Command personnel served on the working committees of the following organizations:

Accoustical Society of America
American Association for the Advancement of Science
American Association of Cost Engineers
American Chemical Society
American Concrete Institute
American Electroplaters Society
American Hospital Association
American Institute of Architects
American Institute of Chemical Engineers
American Institute of Chemists
American Institute of Industrial Engineers
American Management Association
American National Metric Council
American National Standards Institute
American Nuclear Society
American Petroleum Institute
American Society of Civil Engineers

American Society of Heating, Refrigerating, and Air Conditioning Engineers
American Society of Mechanical Engineers
American Society for Metals
American Society of Military Comptrollers
American Society of Naval Engineers
American Society for Testing and Materials
American Waterworks Association
American Welding Society
Anti-Friction Bearing Manufacturers Association
Armed Forces Communications/Electronics Association
Boston Society of Civil Engineers
Building Rersearch Advisory Board
Business and Professional Women's Club
Chief of Naval Operations Environmental Committee
College of Engineers, Architects, and Surveyors
Conference of Federal Environmental Engineers
Construction Research Council
Construction Specifications Institute
Heal Physics Society
Illuminating Engineering Society
Institute of Electrical and Electronic Engineers
Institute of Noise Control Engineers
Inter-Agency Committee on Seismic Safety in Construction
Inter-Society Color Council
Joint Engineers Council
Marine Technology Society
National Association of Corrosion Engineers
National Council of Architectural Registration Boards
National Fire Protection Association
National Institute of Building Science
National Society of Professional Engineers
NATO Petroleum, Oil, and Lubricants Working Group
Oil and Colour Chemists
Oil Companies International Marine Forum
Permanent International Association of Navigation Congresses
Society for the Advancement of Management
Society of American Military Engineers
Society of American Value Engineers
Society of Environmental Graphic Designers
Society of Plastic Engineers
Standards Engineers Society
Steel Structures Painting Council
Transportation Research Board
Tri-Service Protective Coatings
U.S. Naval Institute
Value Foundation
Washington Operations Research Council
Washington Paint Technical Group
Washington Society of Engineers

Engineering and Design Management and Technical Conferences

The Engineering and Design Program sponsored three conferences during 1980. The first was a construction specifications workshop, which took place

at Command headquarters in October. The objective of the workshop was to discuss and improve the joint efforts of headquarters and the engineering field divisions to maintain the master specifications series.[17] This series was established to assure that individual guide specifications and their resultant project descriptions delineated the types of construction that would best meet the Navy's requirements. The Navy could not operate efficiently without well built, functional structures; and the quality of construction depended on specifications that were practical and clearly written.

In December, a fire-protection engineering workshop was held at headquarters. Representatives from the Command's engineering field divisions, the Naval Material Command, and the Naval Sea Systems Command attended. The objective of this workshop was to provide a forum to discuss mutual problems, new technical developments, and new criteria; and to develop better methods for the Command to carry out its fire protection responsibilities. In addition, the participants discussed ways to build safety and health measures into the design process.

Lastly, the Engineering and Design Program sponsored a workshop for the directors of design units at the engineering field divisions. The main purpose of the conference was to inform the participants of the latest techniques in design management. The workshop placed special emphasis on in-house design work, cost engineering, criteria development, energy conservation, pollution abatement, and safety and health requirements. The participants also received guidance on the efficient accomplishment of the Command's design mission.

PROGRAM MANAGEMENT

As fiscal year 1980 drew to a close the fiscal year 1981 operations plan for the Engineering Program was submitted to the Programs Division. The fiscal year 1981 execution plan was also distributed.[18] In addition, the staff forwarded data on the status of consultation and construction criteria to the Policy Planning Officer in preparation for a meeting between the Commander, Naval Facilities Engineering Command and the Chief of Naval Material. Obsolete construction specifications had created difficulties for the Command in the late 1970's, and the Chief identified two specific instances for the CNM: sea suction fouling[19] and the failure of the plating shop at the Charleston Naval Shipyard to open as scheduled because of inability to comply with environmental regulations.

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[17]The Master Construction Specifications File is explained at the beginning of this chapter.

[18]An operations plan states goals and targets for the coming year. An execution plan, in contrast, outlines how a particular program will organize its resources and manpower to meet the objectives set forth in the operations plan.

[19]When a port lacks the ability to produce adequate steam for a moored ship, the vessel must run its own boilers and take in harbor water as the raw material. If this water is fouled (e.g., with garbage or debris), the ship's machinery may be damaged.

The staff of the Engineering Program also submitted its funding needs for the 1982 Navy Operations and Maintenance budget to the Programs Division. This submission emphasized the inadequacy of the funding appropriated for the criteria program in 1980. The Program Objective Memorandum 83 issue paper which was forwarded to the Budget Division also highlighted the inadequacy of funding.[20]

AUTOMATED DATA PROCESSING IN DIRECT SUPPORT OF ENGINEERING AND DESIGN

Guide Specifications System

The Guide Specifications System was a master construction specifications file that was stored in a computer memory bank. CNO approved a request to replace the existing system of WANG-30 word processors with WANG-140's in order to increase the efficiency of GSS and to provide word-processing support for other Engineering and Design Program requirements. The WANG-140's possessed a considerably larger memory capacity than the WANG-30's and would therefore improve the system.

Computer-Aided Design

The Computer-Aided Design system was established to provide the Engineering and Design Division's architects and engineers with programs and codes to assist in solving engineering and design problems. Hence, when the Command's architects and engineers began to design a new project, they could use the computer to solve complicated problems such as energy analysis, structural design and hydraulic design. A competitive bidding process to award new Computer-Aided Design service contracts to private firms ended in December 1980. Control Data Corporation and McDonnel Automation were awarded these contracts for the next three years.

Design Management Information System

The Design Management Information System (DMIS) was another computerized file which was being established to help the Command keep track of the design phase of its contruction projects. It stored information about design costs, labor costs, and the specific engineers involved in a particular project. Much of the pertinent information, in fact, would be put into the computer by those very engineers.

In June 1980 the Command finished converting its design projects to this new system. The planners hoped that it would substantially improve the ability of the engineering field divisions to produce data tailored to their needs. In addition, a new policy allowed engineers tc update files related to the projects on which they were working, an innovation that the Command hoped would improve the system's ability to deliver timely reports.

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[20]The term "program objective memorandum" is defined in Chapter V.

Criteria-Scheduling System

The Command is responsible for writing and revising about 2,000 sets of construction criteria for naval facilities. The Criteria-Scheduling System was set up to allow computers to schedule the revisions and to track revision work while it was in progress. In 1980, the Engineering Systems and Costs Branch made a study which determined that this system should be incorporated into the new Design Management Information System. Procedures to effect the conversion began in 1980 and would probably be completed late in fiscal year 1981.

Cost Engineering

The computerized Cost Engineering System is composed of two elements: a cost estimating system and a historical data collection system. The Command's Atlantic Division began development of the former in late 1975 and the latter in 1980. The Command approved the implementation of the system, which would provide engineers with a uniform and systematic approach to cost engineering, all at engineering field divisions.

CHAPTER VII

CONSTRUCTION

The Construction Program was responsible for preparing designs for facilities projects, either in-house by using staff architects and engineers or through contracting efforts. The program was also responsible for providing complete and usable facilities to the various customers the Command served. All contracting by the Naval Facilities Engineering Command with the exception of real estate procurements, was accomplished under the auspices of the Construction Program. The most significant volumes of contracts were related to construction and to those procurements which provided for architectural-engineering services to support the Command's worldwide construction agent responsibilities.

The Construction Program managed more than half the total budget allocated to the Engineering Field Divisions and to Officers-in-Charge of Construction. The manpower effort was split about evenly between design and pre-contract award effort, and overseeing the contractual effort during the construction phase. Inherent to this division of labor effort was the fact that the Construction Program was responsible for executing the entire Navy Military Construction Program from design authorization to completion and turnover of the finished product to the customer.

The goals and objectives of the Command Management Plan measured the performance of the Construction Program. This chapter will focus on how well the Construction Program fulfilled these goals during 1980 and detail significant projects and programs. In addition, several new initiatives which were instituted to provide better service to the fleet and to improve internal operating procedures will be discussed.

OVERVIEW OF SIGNIFICANT PERFORMANCE INDICATORS

Design Status

The Construction Program was responsible for completing all designs authorized under the Military Construction Program for execution by the Navy. The following chart summarizies the size of each program and its design status at the end of calendar year 1980:

CHART 7-1. PROGRAM DESIGN STATUS, 1980

Fiscal Year	Program Size ($M)	Percent Completed, 31 December 1980
Military Construction, Navy		
A. 1979	712.2	100
B. 1980	461.9	91
C. 1981	675.9	45
Military Construction, Navy Reserve		
A. 1979	19.4	100
B. 1980	16.1	100
C. 1981	30.6	27
Navy Family Housing		
A. 1979	38.7	95
B. 1980	0	0
C. 1981	74.5	75

The total design-in-place for 1980 was worth approximately $1.1 billion. This amount represented the total estimated construction cost of design work completed from all Military Construction Programs and from those other programs assigned to the Naval Facilities Engineering Command for design.

During 1980 the Command continued to place strong emphasis on the completion of preliminary engineering documentation and the achievement of 35-percent design status for projects budgeted for fiscal year 1982. The goal was to have all these projects at the 35 percent stage prior to submitting the budget to Congress. Of 205 projects assigned and included in the program, 162 had reached the 35 percent stage when Congress received the budget.

Program Execution

The manager of the Construction Program was the individual principally responsible for the total execution of the Military Construction Program. The following table shows the execution status at the end of 1979 and compares to the status at the end of 1980.[1]

[1]When the personnel of the Construction Program talk about "executing" a project, they do not mean completely finishing it. Rather, they mean obligating the money Congress has appropriated to build it. In this context the term "execution" is used to indicate the obligation of funds appropriated for a project. In a more general context execution means designing, constructing, turning over to the customer and financial closeout of the project.

CHART 7-2. CONSTRUCTION PROGRAM EXECUTION

Program	Program Size ($M)	Status as of 12/31/79 (%)	Status as of 12/31/80 (%)
Military Construction, Navy			
A. FY 1979	712.2	97	99.7
B. FY 1980	461.9	12	92.4
C. FY 1981	675.9	N/A	13.8
Military Construction, Navy Reserve			
A. FY 1979	19.4	100	100.0
B. FY 1980	16.1	0	100.0
C. FY 1981	30.6	N/A	2.5
Navy Family Housing			
A. FY 1979	38.7	28	80
B. FY 1980	0	0	0
C. FY 1981	74.5	N/A	0

During fiscal year 1980, the Navy executed 91 percent of its assigned program. This figure represented the highest level of execution achieved by any Military Construction Agent in fiscal year 1980 and was the third consecutive year that the Command exceeded the Department of Defense goal of 90 percent.

During calendar year 1980 the Construction Program awarded approximately nine thousand construction and demolition contracts with initial award amounts of about $1 billion. The greatest number of contract awards resulted from the growing real property maintenance account efforts sponsored by the Chief of Naval Operations through the major claimants.

Work-in-Place

Work-in-place is a measurement of the physical portion of a facility or project completed during a given time period. In 1980 the total volume of work-in-place was about $1.6 billion. The distribution of this work by major fund types is illustrated in the following chart:

CHART 7-3. CY 1980 WORK-IN-PLACE

Funding Category	Work-in-Place ($ Million)
Military Construction	$ 718
Family Housing, Defense	138
Naval Industrial Fund	140
Reimbursable	152
Other Directed (Cite)	47
Real Property Maintenance Activity	283
Facilities Service Contracts	123
Total	$1,601

Income bearing "work-in-place" produced Supervision, Inspection and Overhead funds which paid for a large portion of the Command's operating budget. The budget was designed in such a way that the Command had money to spend on administrative and salary costs only as construction finished--i.e., "work-in-place"--earned money for the Command to use in meeting its operating expenses. At the Engineering Field Division level the Command set a goal that the overhead expense rate should not exceed 3.1 percent of the funds allocated with an overall objective of 3 percent by 1981. During 1980 a relatively stable civilian work force with a fixed end strength administered $1.25 billion of income bearing work-in-place with an overhead cost of only 2.6 percent. This was the lowest overhead expense in the history of the Command. The expense rate measurement is an indicator of the efficiency of the construction effort in fiscal terms.

Financial Status of the Navy Military Construction Fund

In recent years the funded position of the Navy Military Con- struction Program has fluctuated, dependent upon the cyclical nature of the programming-budgeting-bidding process. Bidding in the construction market during 1978 and 1979 reflected the impact of unexpected high inflation rates long before they were reflected in the consumer price index. This, when coupled with reduction in congressional funding, created an underfunding in the Navy Military Construction account and left the Navy with insufficient funds to complete all the approved projects.

During 1980 the bidding in the construction market became more favorable to the government. This change, coupled with the increased management controls, cooperation of Navy claimants and improved cost estimating resulted in an improved funded position at the end of 1980 compared to 1979.

Closeout of Navy Military Construction Projects

During 1979 the Command placed great emphasis on the completion and fiscal close out of projects. This emphasis was spurred by a desire to fiscally close out projects in order to prohibit them from experiencing cost growth. The following table depicts the status of close outs in fiscal years 1970 through 1976 at the end of the 1980 calendar year:

CHART 7-4. COMPLETION STATUS OF PROJECTS FUNDED IN THE 1970's

Military Construction Program (Fiscal Year)	Number Started	Percent Completed 12/31/79	Percent Completed 12/31/80
1970	172	86.6	94.8
1971	150	78.7	94.0
1972	220	79.1	90.9
1973	258	65.9	85.9
1974	242	64.0	78.9
1975	230	40.4	65.7
1976	200	24.5	46.2

Efforts to insure the fiscal integrity of the Navy Military Construction program continued to be strongly emphasized. Significant progress was made in this critical area during 1980, and the Command hoped for even greater improvement in 1981.

MANAGEMENT INITIATIVES

During 1980 the Construction Program Manager instituted numerous initiatives to assure better control of the Construction Program.

Small and Minority-Owned Business Firms

The Naval Facilities Engineering Command had a responsibility to assure that an equitable portion of its work was accomplished by small and economically disadvantaged businesses. The Command continually evaluated the capability of the commercial sector and established appropriate goals in order to meet this responsibility. During 1980 the Command awarded $49.2 million in contracts to, and businesses owned by, disadvantaged minorities through a special program sponsored by the Small Business Administration (the SBA 8 (a) program). The Command also awarded an additional $73.8 million through direct competitive procurement. In addition, 14.6 percent of the total number of architectural-engineering contracts and 9.6 percent of the value of these contracts were awarded to minority firms. Because the construction manager strongly emphasized this program, the Command continued to lead all other Navy systems commands in the percentage of business awarded to small and disadvantaged firms during fiscal year 1980.

Construction Program Staffing

During 1980 the Construction Program completed an exhaustive review of the staffing requirements necessary to manage an expanding and changing workload. The Shore Required Operational Capability Program verified standards and methodology utilized to determine required staffing by functional area. This analysis documented a grave deficiency in existing staffing levels and prompted the Command to adopt a program of purchasing increased services from the private sector to assure the necessary mission responsiveness to the Navy, since additional end strength was not available

within the Navy. By the end of 1980 several contracts had been let for inspection services during construction and numerous others were in the process of being awarded. It was expected that greater than 100 end strength equivalent will be under contract by the end of calendar year 1981, which should greatly assist the Command in providing the desired support to the Navy.

SIGNIFICANT PROGRAMS AND PROJECTS

Naval Regional Medical Center, San Diego

In January 1980 the Federal Government condemned approximately 36 acres in Florida Canyon for use as a site for the proposed hospital. $3.7 million was deposited with the court as the fair market value; and on 7 February 1980, the court gave the Navy immediate possession for borings and trenching. In the meantime an environmental group filed a law suit against the Federal Government alleging an incomplete environmental impact statement. This suit was still pending at the end of 1980.

During boring operations at Florida Canyon in May 1980, an earthquake fault was discovered and further soils studies were initiated.

On 3 June 1980, as part of the San Diego municipal elections, a proposition to change approximately 48 acres of city owned property at Helix Heights from cemetery to housing or hospital use received a favorable 68 percent vote. The city and some civic groups campaigned to have the hospital sited at that location, and, as a result, the House Armed Services Committee declined to specify a particular site but directed that whichever site was selected, construction must be on land owned in fee simple by the Federal Government. In addition the committee specified that the cost must be within the fiscal year 1981 estimate of $293 million and the planned timeframe and program scope must not be sacrificed because of the site selected. The committee also directed that the Navy provide a comparative study of Florida Canyon versus Helix Heights and that the Secretary of the Navy identify a final site selection. On 5 December 1980 the Secretary of the Navy identified Florida Canyon as the preferred site and submitted copies of the report to the Appropriations and Armed Services Committees of the House and Senate. A Congressionally directed 30 calendar day waiting period during which no construction contract could be awarded started on 5 December 1980. All design effort at Helix Heights was discontinued and such effort was directed toward design at Florida Canyon. The Command expected to award the initial construction contracts for this facility during 1981.

Program for the Trust Territory of the Pacific Islands

In February 1976 the Naval Facilities Engineering Command initiated a capital improvements program for the Trust Territory of the Pacific Islands under the sponsorship of the Department of the Interior. This program includes roads, docks, airfields, and utility systems. By the end of 1980, the Command had awarded contracts totaling $142 million with work in place amounting to about $80 million.

Naval Petroleum Reserve No. 1 (Elk Hills)

The Elk Hills program involved the construction of crude oil and natural gas production facilities near Tupman, California. The Naval Facilities

Naval Petroleum Reserve No. 1 (Elk Hills)

The Elk Hills program involved the construction of crude oil and natural gas production facilities near Tupman, California. The Naval Facilities Engineering Command was the design and construction manager for the Department of Energy on this project. As such, the Command was responsible for designing and constructing facilities that would produce approximately 100,000 barrels per day of crude oil and process 200 to 300 million cubic feet of gas per day. Major contracts included a tank farm of five 250,000 barrel tanks, two low temperature-separation gas plants each having 100 million cubic feet per day capacity, a gas compression plant, electrical distribution system, roads, fire and fresh water system, gas collection and injection systems, oil collection systems, and supporting buildings. The total program for NAVFAC design and construction at Elk Hills was established at $210 million at the end of 1980. Funding authorized was $181 million and work in place was $130 million at the end of the year. Work on the project was to be completed by mid 1982.

The Officer-in-Charge of Construction, Elk Hills, a separately constituted Echelon V activity under the Western Division, was responsible for the initial work at Elk Hills. However, during 1980 the workload was such that a separate activity was no longer warranted. Accordingly, the Command disestablished the office of the Officer-in-Charge of Construction on 1 October 1980, and the Western Division became directly responsible for all the remaining work.

Non-Appropriated Funds Program

The Non-Appropriated Funds Program provided morale, recreational and welfare facilities for service personnel and their dependents throughout the Navy and Marine Corps. Facilities were funded primarily from sales of products and fees from recreational facilities with augmentation by appropriated funds for commissaries.

During 1980 the Command was authorized to design 21 Navy and 14 Marine Corps projects. Fourteen projects, valued at $25 million, were placed under construction during 1980. While the Navy program was relatively stable, it was expected that the Marine Corps program would grow significantly from the levels achieved during 1980 (the first full year of the program).

Infrastructure Program at the North Atlantic Treaty Organization

In the North Atlantic Treaty Organization, the word "infrastructure" has a specialized meaning. It refers to those fixed installations which are necessary for the deployment and operation of armed forces--e.g., airfields, signals and telecommunications, military bases, and missile installations.

Once the Defense Planning Committee has approved the annual infrastructure plans, a host country assumes execution responsibilities. In 1980, the Naval Facilities Engineering Command acted as the Host Country Construction Agent for the NATO Infrastructure Program in the United States, Bermuda, Iceland, and Puerto Rico. The Command's role in NATO programs increased in the later 1970's partly because of Congressional pressure to utilize more internationally-funded facilities whenever possible. Approximately sixty projects valued at $80 million had been completed or were in the active design and construction stages at the end of the year.

Military Construction for the Reserve Forces

The Navy Facilities Engineering Command is one of the DOD designated design and construction agents for Reserve Facilities. The most significant effort in this area involved construction for the Naval and Marine Corps Reserve which had a $16.1 million program comprising fifteen projects in fiscal year 1980. The Command awarded construction contracts for all of these projects during fiscal year 1980. Design of twenty-seven fiscal year 1981 and 1982 Naval and Marine Corps Reserve projects was underway during 1980. In addition, the Command administered thirty-two major projects for the Air National Guard, the Army Reserve, and the Air Force Reserve.

Defense Access Road Program

The Defense Access Road Program was established to provide a means for Defense Agencies to pay their fair share of the cost of unusual highway improvement needed for adequate highway service to Defense installations activities.

During 1980, funds in the amount of $1.3 million were provided to complete the off-station road program in support of the Naval Submarine Support Base, Bangor, Washington. The total program for the Trident Base was $22 million.

At the Naval Submarine Support Base, Kings Bay, Georgia, the T-1 program provided for the servicing of one submarine squadron by a tender. $2.3 million was provided in 1980 for required improvements to existing off-station roads in the vicinity of the base. In addition, the Command initiated studies to establish requirements for off-station roads in support of the Trident A-1 program's east coast facilities which were to be located at Kings Bay.

Navy/Marine Corps Family Housing - New Construction

During 1980, the Command placed four major family housing projects under contract, most with solar energy systems augmenting domestic hot water and space heating requirements. The projects were located at the Marine Corps Air Station, El Toro, California (216 units); the Naval Complex, Ballston Spa, New York (100 units); the Naval Submarine Support Base, Kings Bay, Georgia (250 units); and the Naval Air Station, Fallon, Nevada (70 units). Altogether these projects represented a $33.2 million investment in new family housing of which $4 million was for solar energy systems. The Command awarded the El Toro Project under turnkey procedures. The other projects were accomplished by competitive bidding utilizing government prepared plans and specifications. The Fallon, Nevada project was bid unsuccessfully in September 1979. Following the unsuccessful bid the Deputy Assistant Secretary of Defense (Installations and Housing) recommended that the Command investigate the use of mobile homes to satisfy this two bedroom junior enlisted men's requirement. A major study of feasibility and contracting methods concluded that mobile homes could be manufactured to meet DOD fire protection and energy standards.

The Command achieved an acceptable architectural solution by requiring pitched roofs, removing tongues, and recessing the foundations into the ground. The units were to be double wide (24 x 44 feet). Site improvements would include roads, walks, utilities, patios, exterior storage sheds, and privacy fencing. The Command awarded the construction contract in December 1980. Completion was scheduled for November 1981. Total cost was to be $3.1 million or $44,314 per unit. This was to be a "test case" project to determine the

suitability of mobile homes in military family housing applications, and the Command planned to monitor it closely for the next five years.

Energy Conservation Investment Program

The Navy maintained a strong and aggressive program to reduce energy consumption during 1980. In the 1977-81 period Congress authorized approximately $215 million for this purpose, and projects valued at an additional $100 million were in various stages of design development for future construction. The Navy anticipated significant savings through this program with typical projects paying for themselves in approximately four years after turnover to the activity.

Transfer of Construction Agent Responsibilities in the Mediterranean Area

On 3 December 1979 the Deputy Secretary of Defense, W. Graham Claytor, Jr., transferred DOD design and construction responsibilities for Italy, Greece, Portugal (including the Azores), Morocco, Algeria, Tunisia and Libya from the Army Corps of Engineers to the Naval Facilities Engineering Command. This decision was based on a desire to align peacetime and wartime construction responsibilities and to realign the construction agent to the predominant operating forces in the area.

In addition, DOD design and construction responsibilities for Turkey were to be transferred to the Navy upon completion of the Long Range Security Program (underway during 1980), subject to a reassessment of workload at the time of completion.

In February 1980, a Memorandum of Agreement was negotiated between the Army Corps of Engineers and the Naval Facilities Engineering Command which detailed the transition of projects under execution and provided an implementation schedule. All milestone events were met and the entire transfer was completed on 1 October 1980.

Air Force Programs

During 1980, the Naval Facilities Engineering Command was involved in design and construction of Air Force facilities in several different program years simultaneously. The fiscal year 1979 and 1980 programs were in various stages of construction, fiscal year 1981 designs were nearing completion, and fiscal year 1981 designs were getting started. Overall workload is summarized as follows:

FY1979 program included 22 projects for approximately $36 million
FY1980 program included 36 projects for approximately $60 million
FY1981 program includes 36 projects for approximately $99 million
FY1982 program includes 42 projects for approximately $270 million

The 1980 through 1982 workload included efforts associated with the Indian Ocean program at Diego Garcia and a significant upgrading of facilities at Lajes, Azores.

Defense Intelligence Analysis Center, Washington, DC

The project for the Defense Intelligence Analysis Center called for several interconnected multi-story buildings encompassing 845,000 square feet plus a parking structure for 960 cars. During 1980, the design was completed on this $106 million project. The project was to be built using a single lump sum contract which the Command expected to award in March 1981. This would be the largest single lump sum contract ever awarded by the Command. Another unique aspect of this project was that it was to be authorized and funded by Congress in two different fiscal years (1981 and 1982). An incremental funding provision was included in the contract. In addition, several segregable facilities would permit the user to occupy the facility incrementally prior to final completion three and one-half years from the award date.

Officer in Charge of Construction, Trident

During 1980, the Secretary of the Navy approved Kings Bay, Georgia as the Atlantic coast home port for Trident submarines. The construction effort for the east coast base will amount to about $1.5 billion over the next ten years. This large effort, coupled with the phase down of construction operations in Bremerton, Washington prompted the Command to relocate the Officer in Charge of Construction, Trident to Kings Bay, Georgia. The transfer of records, equipment and cadre personnel was accomplished in September and October of 1980.

Indian Ocean Workload

World events in late 1979 and in 1980 prompted a reassessment of the U. S. Defense posture in the Indian Ocean Area. This reassessment indicated a necessity for prepositioned materials to support a rapid deployment force and a more active U. S. presence in the area. Facilities to support this effort were approved during 1980 for Diego Garcia, Oman, Somalia, Kenya and the Azores.

The Naval Facilities Engineering Command would be the DOD construction agent for all locations except Oman. The Command's Atlantic Division would accomplish the Kenya, Azores and Somalia work while the Pacific Division would accomplish work on Diego Garcia.

Because of the rapidly expanding nature of the workload, its unusual interservice sponsorship and extensive country to country coordination required, a separate Indian Ocean Projects Office (code 05E) was established at Command headquarters.

By the end of 1980, the Command had advertised the first $100 million of contract work and was evaluating the bids on the intial dredging for Diego Garcia. Except for dredging, the work on Diego Garcia was to be accomplished by a Cost Plus Award Fee contract. The Command expected to award this contract during the summer of 1981. Work was to continue through 1983 and the total value of construction was estimated at about $500 million.

CHAPTER VIII

FACILITIES MANAGEMENT

MAINTENANCE

Industrial Engineering Branch

In 1980, the Industrial Engineering Branch began developing standardized statements of work to aid naval activities which were initiating facility-related service contracts in compliance with the Commercial-Industrial Program.[1] Each major division of the Command was assigned to develop criteria for one or more functional areas:

LOCATION	FUNCTION
NAVFAC Headquarters	-- Vehicle Operations and Maintenance
Atlantic Division	-- Family Housing and Maintenance
Northern Division	-- Custodial Services
	Building Maintenance
Chesapeake Division	-- Guard Services
	Fire Protection
Southern Division	-- Bus Service
	Heating, Ventilation, and Air-Conditioning Maintenance
Western Division	-- Grounds Maintenance
Pacific Division	-- Refuse Collection

Drafts of seven work statements for facilities service contracts were distributed to the engineering field divisions for testing.

A maintenance conference was held from 21 to 24 October. The participants discussed the public works portion of the Command Management Plan, specialized inspections, standardized statements of work, funding, and other problems. In addition, the Industrial Engineering Branch conducted a seminar on commercial and industrial activities and service contracts for the Bureau of Medicine and Surgery in August.

In September, branch personnel provided on-site assistance to the Pacific Division in the preparation of a base-operations support contract for Midway Island.

Facilities Maintenance Branch

In June, the Chesapeake Division completed the design for new moorings at Diego Garcia in the Indian Ocean. The individuals involved presented their concept to NAVFAC and the Pacific Fleet and were told to proceed with the installation of these moorings.

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[1] A standardized statement of work is a general description of the way in which some common maintenance function should be carried out. For an explanation of the Commercial-Industrial Program, see chapter IV, footnote 3.

A surface preparation and coatings workshop for Northern Division activities occurred between 27 and 29 May. The workshop leaders demonstrated typical failures and recommended corrective actions. Paint quality and contract inspection techniques seemed to present the most serious problems for Northern Division activities.

Trackage

The Facilities Maintenance Branch held a crane and railroad trackage workshop from 26 to 28 February in Philadelphia. The Federal Railroad Administration assisted in the field training of inspectors. Identification of defects, proposed changes to the certification program, maintenance procedures, and curved alignment were discussed and demonstrated.

On 29 February a track audit committee met for the first time. The committee drafted a proposed instruction to improve the reliability of track audits.[2] A NAVFAC instruction on the crane and railroad trackage audit program was completed, printed, and distributed. The Command also conducted an audit of the crane rail at the Pearl Harbor Naval Shipyard.

Roofing Workshops

A roofing workshop took place at the Atlantic Division from 10 to 12 June. Workshop attendees learned about the new elastomeric roofing systems, various Civil Engineering Laboratory findings, contractor problems, nuclear meter testing, and maintenance of built-up roofing systems.[3] The Pacific Division held their annual roof workshop from 30 June through 3 July.

The Northern and Southern Divisions conducted their annual roofing workshop during the week of 18 to 22 August 1980. Personnel from the Maintenance, Construction, and Design Programs attended. The workshop's purpose was to inform the field divisions about the latest techniques in the maintenance of built-up roofs.

Chief of Naval Material Special Projects Program

The Chief of Naval Material Special Projects Program provided funding for certain types of large and expensive repair projects that naval activities might otherwise have trouble financing.[4] Under ordinary circumstances, any single repair project at a shore activity was limited to $25,000 from Navy Operations and Maintenance funds. An activity with a more expensive repair problem had to apply to the CNM for authorization under the Special Projects Program.

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[2]A "track audit" is an inspection of railroad tracks and their underpinnings to certify their safety.

[3]An "elastomeric" roof involves the application of elastic sheet material (usually single ply) directly to the deck or to a coated base sheet with either hot asphalt or manufacturer's adhesive. A "built-up" roof is a membrane built up on the job from alternate layers of bituminous saturated, or saturated and crated felt or fabric and bitumen.

[4]The Special Projects Program also funded some minor construction projects.

In 1980 the Navy gave high priority to large maintenance and repair projects. The total funding allocated to this program in fiscal year 1980 was $15 million, and all of the Navy Operations and Maintenance money available for the fourth quarter was set aside to award contracts for special projects. Two training courses for the program were conducted at the Public Works Center, Pearl Harbor, between 21 and 24 April; and another course for West Coast personnel took place at the Naval School, Civil Engineer Corps Officers, on 2 and 3 June.

NAVFAC Headquarters issued $5.9 million to the engineering field divisions on 23 October for the fiscal year 1981 Special Projects Program. The Command expected that this program would continue into fiscal year 1982.

Specialized Expertise

When a naval activity had a routine maintenance problem, the engineering field division in its geographical area provided technical assistance. Occasionally, however, extremely complex maintenance needs developed. In order to assure that difficult problems received the best possible remedies, the Command requested each engineering field division in the continental U.S. to develop "specialized expertise" in a given area of maintenance. When an especially complex maintenance problem arose, the appropriate specialized division would respond. In 1980, the following engineering field divisions were assigned to develop specialized skills: Atlantic Division, waterfronts; Northern Division, roofing; Chesapeake Division, elevators; Southern Division, trackage and utilities; Western Division, pavements and bridges.

Real Property Maintenance Branch

In the late 1970's, the Navy became aware that it needed better information on the state of its physical plant and related maintenance issues. The Command's Real Property Maintenance Activity Branch was assigned to draw up the plans for a major study of maintenance needs and to test them. The plans were completed in 1980, and the Atlantic Division awarded a contract to a privately owned company to conduct the preliminary phase of this study.

RPMA Branch personnel also made a study to determine what criteria they would use to designate maintenance projects as non-deferrable. The on-site testing was performed at the U.S. Naval Academy and the Naval Surface Weapons Center in Dahlgren, Virginia.

As usual, the Real Property Maintenance Activity Branch devoted attention to preparing its budget submissions for Operations and Maintenance, Navy; Operations and Maintenance, Navy Reserve; Research, Development, Testing and Evaluation; and Navy Industrial Fund appropriations in 1980. Staff members completed the fiscal year 1981 funding submissions for the Secretary of Defense and for the Presidential-Congressional budget and then sent them to their respective destinations. Congress made no major changes in the funding requested for real property maintenance.

The RPMA staff also finished Program Objective Memorandum 82.[5] It included significant increases in funding for maintenance and utilities. The 1982 real property maintenance activity budget which was submitted later in the year through the Navy Comptroller and the Office of the Secretary of Defense to Congress, would reflect these higher funding levels. The budget contained a request for additional funds to reduce the maintenance and repair backlog at public works centers and naval ordnance activities.

In March 1980, the Real Property Maintenance Activity Branch provided technical assistance to the Shore Activities Planning and Programming Division of the Office of the Chief of Naval Operations during the House Armed Services Committee hearing on military construction and real property maintenance.

RPMA personnel also made a policy presentation to the Shore Activities Planning and Programming Division. The presentation defined the major goals of real property maintenance activity for the next several years. In addition, they made another presentation to the CNO's staff on the RPMA data base system and on real property maintenance activity functions that required study. The Shore Facilities Programming Board met in October, and the Real Property Maintenance Activity Branch was responsible for part of the scheduled agenda.

Staff members constructed a baseline-assessment memorandum for Program Objective Memorandum 83.[6] They utilized the mathematical and programming capabilities of the Wang word processor to match funding requests from major claimants with the responsible resource sponsors. The RMPA staff then explained this memorandum at a meeting of the OPNAV resource sponsors.[7]

Staff members also conducted an assessment of data processing support and automatic data processing policies as they related to RPMA management and execution. The automatic data processing support representative traveled to the Facilities Systems Office in Port Hueneme to expedite this review.

On 12 May the CNO's Shore Activities Planning and Programming Division approved OPNAV Instruction 11010.34A, the revised instruction on the annual inspection summary. The changes included new formats, different criteria for classifying maintenance deficiencies as non-deferrable, and the designation of 30 September as the new reporting date for the summaries. Later in the year the revised summaries began coming in from naval activities and were entered into the computer through a new on-line system which became operational in 1980.[8]

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[5]A program objective memorandum sets forth the major goals that the Command hopes to attain over a five-year period. One is drawn up for each fiscal year.
[6]A baseline-assessment memorandum contains the basic information that a subdivision of the Command needs to construct its program objective memorandum.
[7]The OPNAV resource sponsors are groups of individuals in the CNO's office who specialize in overseeing funding requests for various functions the Navy performs.
[8]The annual inspection summarizes are discussed at greater length in the public works section of this chapter.

TRANSPORTATION

Firefighting Equipment

During the week of 18 to 22 February, the Command tested the Navy's newly developed aircraft firefighting and rescue vehicle for compliance with contract specifications. This 1000 gallon capacity, type A/S32P-17 vehicle represented the latest technology in hydrocarbon fire suppression and quick response time. Transportation personnel successfully demonstrated the vehicle's new fire-extinguishing agent dispensing systems, secondary firefighting systems, and two- or four-wheel drive (which provided an on- or off-road capability).

In April the new firefighting and rescue vehicle was used to extinguish a large test fire (7,500 square feet, 2500 gallons of contaminated jet fuel) at the Naval Air Station in Oceana, Virginia. The test was part of a week of indoctrination and operational training for personnel from air activities on the East Coast who would use the new vehicles.

Weight-Handling Equipment Program

In order to strengthen the Command's weight-handling equipment program and to centralize the management of such equipment from acquisition to disposal, the Command established a weight-handling equipment center at the Northern Division in November 1980. This center, which was directed by the Commanding Officer of the Northern Division, supervised field aspects of the weight-handling equipment program for NAVFAC. Major program execution and assessment responsibilities were relocated to the Northern Division. In addition, the Command established an office for a chief weight-handling equipment consultant within the organization of the Assistant Commander for Maintenance and Transportation at headquarters.

ENERGY PROGRAM

Radiological Affairs Support

In January 1980, the Command Advisory Board approved the establishment of a new organization called the Naval Energy and Environmental Support Activity, which merged the former Navy Nuclear Power Unit and the Navy Environmental Support Office. The merger incorporated the energy, environmental, radiological affairs support, and mobile utility support equipment programs into one field activity, which was sponsored by the Assistant Commander for Energy and Environment. The expected benefits were economy of scale, the centralization of important programs under one sponsor, professional growth for officers, and a close association between environmental and energy engineers and skilled technicians.

A Chief of Naval Operations memorandum dated 20 March 1980 moved responsibility for radiological safety within the CNO's organization.[9] The Environmental Protection and Occupational Safety and Health Division assumed sponsorship for the radiological affairs support program, and the Naval Sea

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[9]Serial 09/501180.

Systems Command was given surveillance over radiation safety for nuclear weapons. The newly organized Naval Energy and Environmental Support Activity would provide radiation training and other types of assistance.

NAVFAC submitted a summary of radiation health and safety regulations throughout the Navy to the Naval Sea Systems command and the Naval Safety Center. The summary would be included in OPNAV instructions for shore facilities and forces afloat.[10] The Command also prepared an instruction giving standards, requirements, and information for the radiological affairs support program, which was scheduled to be issued in 1981.

NAVFAC Instruction 5100.13, dated June 1980, informed Command activities of the Nuclear Regulatory Commission's new licensing procedures. In January the NRC had terminated a broad license (no. 45-16359-03) for radioisotope thermoelectric generators because the Naval Nuclear Power Unit requested that the generators be placed on its license. The new system licensed radioisotope thermoelectric generators on the ocean floor to the Naval Nuclear Power Unit; and tied the Navy, the Command, and the Nuclear Power Unit to the same requirements and procedures that were in effect under the old license.

The Radiological Affairs Support Program Branch conducted an inspection at Port Hueneme on 31 January and 1 February 1980. The branch also examined the new refresher course for radiation safety officers. Both reviews were favorable. Finally, a training course on X-ray safety was approved for the Naval Energy and Environmental Support Activity.

Mobile Utility Support Equipment

The Commander, Service Force, Sixth Fleet, identified a need for highly mobile cold-iron equipment to provide industrial upkeep and ship repairs in the Mediterranean.[11] Several contractors who could perform repairs were located, but there was no electrical or steam service available for their use. After the Command's Atlantic Division did a study of the situation, a recommendation was made to procure two 800-kilowatt power plants and two 4,000-pounds-per-hour steam plants with individual truck-tractors through the mobile utilities support program. The units were delivered in February and March 1980.

The mobile utility support equipment program continued to improve its electrical and steam capacity, but remained below the CNO inventory objective and the mandatory emergency response level. There were three major factors retarding this capacity: unresolved defects in electric generator rotors for 2,000-kilowatt gas-turbine power plants; an engineering backlog in specification development and purchase descriptions; and an increase in contract cost for equipment that was being procured and overhauled. The Command reached an agreement that allowed the contractor to try a proposed remedy for the defective electric generator rotors. While the engineering time lag was reduced from 2-1/2 years to 1 year, the remaining backlog still caused a delay in contract procurement and overhaul, which in turn precluded the attainment of

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[10] OPNAV is an acronym which stands for Office of the Chief of Naval Operations.

[11] "Cold-iron" equipment is steam and electrical generating equipment used to furnish power to a moored ship after its own power plant has been shut down.

needed capacity. An alarming increase in overhaul and procurement costs (between 40 and 90 percent) forced a reduction in the quantity and quality of new and rebuilt equipment.

Shore Steam Purity

In October 1980, the Naval Sea Systems Command raised requirements for the quality of steam and feedwater that could be supplied to ships in port with steam propulsion systems. Thus, NAVFAC had to identify new equipment which would enable shore steam systems to meet the higher standards. At the Command's request, the Civil Engineering Laboratory at Port Hueneme performed a study to quantify the capabilities of commercially available steam/water separators. Program Objective Memorandum 83 included a request for funds to conduct site specific studies and to initiate a certification procedure for onshore steam facilities which would assure the attainment of steam purity standards.

Corrosion Protection

The Command began a program to improve corrosion protection at the bulk terminals run by the Naval Supply Systems Command. This program would include the development of corrosion protection master plans for each activity, the preparation of corrosion protection projects, and the training of maintenance personnel.

Energy Audit for the Defense Energy Information System

The energy audit report system contained data on the square footage of building space at all naval activities. In 1980, the Command asked these activities to verify this data. This verification was necessary to help implement the order that average annual energy use per square foot of floor area be reduced by 20 percent between fiscal year 1975 and fiscal year 1985. In a related matter, the Marine Corps requested the inclusion of 22 Marine Corps shore activities in the energy audit report system.

Directors' Workshop for the Utilities Division

The utilities directors of the engineering field divisions held a three-day workshop in November at Charleston, South Carolina. Personnel from the Energy and Utilities Division at Command headquarters also attended. The discussions focused on the energy engineering program, utilities engineering and management, the resources needed to produce the desired results in both areas, and the related work load and resources allocated in the Command Management Plan.

ENVIRONMENTAL QUALITY

Hazardous Materials Environmental Management

An OPNAV notice issued in February of 1980 formally inaugurated the Navy's Hazardous Material Environmental Management Program. The notice established specific responsibilities for ships and shore activities, and assigned key roles to the Command's public works centers and engineering field divisions. This program constituted the Navy's portion of a new federal hazardous material

management program. Public works centers had to expand their services to include hazardous waste collection throughout their geographical areas and were expected to enlist outside contractors for final disposal. The engineering field divisions would provide technical assistance to all shore activities; helping them produce activity surveys and necessary plans for hazardous waste management, for the prevention of hazardous materials spills and for countermeasures in the event of such spills. In November, the Command requested program funding from the Chief of Naval Material for inclusion in Program Objective Memorandum 82 and immediate funding for fiscal years 1980 and 1981. The Chief of Naval Material did not release any new money during the first quarter of 1980 but did authorize limited hiring over the ceiling.

The public works centers at Norfolk, Virginia, and San Diego, California, had already hired personnel for hazardous-waste collection; and other public works centers were expected to begin similar actions. All engineering field divisions established schedules for visiting activities. The purpose of the visits was to ensure that the activities understood the new environmental requirements and would act promptly to implement the Navy program.

Hazardous-Waste Management

Over 100 naval activities requested permits from the U.S. Environmental Protection Agency to store, treat or dispose of hazardous wastes. The Navy's implementation of this EPA requirement was off to an auspicious start, since the applications for permits were reviewed by the engineering field divisions and submitted by the November deadline. Activities that had sent in applications were allowed to operate in an "interim status" until the EPA issued final permits, a process which might take several years. "Interim-status" operation required taking specific actions that were enumerated in the final EPA regulations, including written plans for waste analysis inspections, and contingencies. Each activity had to incorporate these plans into its CNO mandated hazardous waste management plan.

A limited amount of pollution abatement money was reprogrammed to build facilities to store, recycle, and treat wastes. The responsibility for hiring contractors to dispose of wastes remained with the relevant activity or the Defense Property Disposal Office. By the end of 1980 pollution abatement projects at several activities had already produced solvent recovery stills, collection equipment, and storage and transfer buildings. Some other activities were considering common buildings to provide hazardous-waste storage both for the Navy and for tenants from the Defense Property Disposal Office.

Training Program for Operators of Water Treatment Plants

During the third quarter of 1980, the Command developed fiscal year 1981 training criteria for the operators of Navy water and waste-water treatment plants. These proposals represented the Navy's response to an OPM policy regarding certification and training for all operators of water and waste-water treatment plants.[12]

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[12]OPM stands for Office of Personnel Management.

Navy Occupational Safety and Health

The Command was officially responsible for managing the Navy's Occupational Safety and Health Deficiency Abatement Program. It developed an automatic data processing system to track abatement projects and furnish information to the CNO and to other branches of the Navy. The Command managed Other Procurement, Navy; Operations and Maintenance, Navy; and Navy Military Construction funds targeted for abatement projects. The Command anticipated that the total funding level would rise from $14 million in fiscal year 1980 to about $45 million in fiscal year 1986. The Command also began to develop a methodology to set priorities for abatement projects. This methodology would be tested and implemented during fiscal year 1981.

Assessment and Control of Pollutants at Naval Installations

OPNAV Notice 6240 of 11 September 1980 initiated the Navy's program to assess past hazardous waste disposal practices at shore activities. This effort to evaluate and control pollutants had four phases: identification of contaminated sites, evaluation of the extent of contamination, development of corrective measures, and initiation of projects to monitor or control the contamination. At the end of 1980, 79 activities were being considered for investigation under this program. Funding support came from the centrally managed Pollution Abatement Program.

Oil Pollution Abatement

Strict environmental regulations, coupled with the unreliability of foreign petroleum supplies, made it essential for the Navy to have an effective program for oil-pollution abatement that stressed the collection, reclamation, and reuse of petroleum products. During 1980, the Command began an integrated, multi-year program designed to meet two goals: to develop waste-oil management plans for naval complexes and to fund and construct oily-waste and waste-oil collection, treatment, and reclamation facilities. In connection with this program, the Command began waste-oil studies for the Naval complexes in Charleston, South Carolina, and San Diego, California. The estimated recoverable oil from San Diego alone was 5.7 million gallons a year, and experts estimated that the potential worth of all recoverable Navy waste oil was $70 million a year.

Applied Biology Program

The Applied Biology Program provided pest management and control at naval installations. The program was staffed by 19 biologists, most of whom worked out of Command headquarters or the engineering field divisions.[13]

Pest management was necessary to protect the personnel, materials, property, and environment under Navy stewardship. It required professional pest control, comprehensive programs, and competent personnel. The law mandated that when certain pesticides were employed, trained and certified individuals had to administer them; and the Navy required all pest-control personnel to be

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[13]Two of the biologists were stationed overseas, one at Subic Bay, in the Philippines, and the other at Yokosuka, Japan.

trained or certified in specialities relevant to the situations they encountered. The philosophy behind Navy pest management was to use an integrated approach which sought to minimize the reliance on chemical controls if other methods were effective. The Navy supplemented in-house pest management with commercial services when the required skills and equipment were readily available and contractural service was economical.

NAVFAC's applied biology staff furnished technical and management guidance for activity pest-control operations and provided certain other public works functions. Because insects and related arthropods comprise the majority of pest species, biologists with expertise in entomology formed the backbone of the Applied Biology Program. The applied biologists provided technical guidance to more than 200 shore activities and training for nearly 600 pest-control specialists. Their assistance to shore activities fell into six categories:

a. Activity Pest-Management Plans--The applied biologists developed pest-management plans specifically designed for each activity and assisted the commanding officers in achieving pest-management goals. These goals incorporated recommended methodologies, materials, and equipment and insured safety and environmental protection. Biologists attached to the engineering field divisions carried out annual reviews at each activity to make certain that the plans were being implemented.

b. Training--Every three years biologists from the engineering field divisions offered training courses for the planner-estimators who devised pest-control programs, for the controllers who applied the pesticides, and for the quality-assurance evaluators who inspected contract operations. The training courses covered the Federal Insecticide, Fungicide, and Rodenticide Act, as amended; the Clean Water Act; the Resource Conservation and Recovery Act; the Toxic Substances Act; and the DOD plan for training and certification of pest-management personnel in Navy and other DOD pest control programs.

c. Report Reviews--In monitoring the pest-control operations of various naval activities, biologists reviewed the activities' monthly pest-control reports for types of pesticides employed, use patterns and other pertinent information. Then they offered appropriate criticism. Each year the biologist summarized these data for the activities and for higher naval authorities who, in turn, reported pest-control information to various state governments and to the Environmental Protection Agency.

d. Material Procurement--The biologists reviewed reports about pesticides procured by the activities for compliance with EPA and state regulations and actual program needs. They also sought to restrict the ordering of pesticides to trained and authorized personnel. In addition, the biologists approved purchases of pest-control equipment to ensure that the activities were procuring tools suited to their requirements.

e. Liaison with State and Local Governments--The biologists reviewed information on state pest-control standards in order to coordinate the Navy's pest-control programs with state and local efforts.

f. Miscellaneous Functions--The biologists occasionally conducted research projects to investigate pests which afflicted various naval activities, and reviewed construction plans to avoid "building-in" pest problems. Biologists attached to the engineering field divisions developed statements of work for contract services and could tailor them to specific situations at installations that were converting to contract pest-control programs. One such statement of work, developed in 1980, was to be tested at several public works centers and other field activities during fiscal year 1981.

The Applied Biology Program was also involved in the activities of the Armed Forces Pest Management Board and in joint Department of Defense--Department of Agriculture research on biodeterioration, insects affecting man, and the protection of marine structures and stored products. The Applied Biology Program also managed the use of abatement funds for correcting pollution deficiencies at naval shore activities.

PUBLIC WORKS CENTERS (PWC)

OPNAV Notice 5450 of 24 December 1980 transferred authority over Public Works Center, Norfolk, Virginia from the Commander in Chief, Atlantic Fleet to the Chief of Naval Material. The Naval Facilities Engineering Command was given responsibility for the Command and support of PWC Norfolk.

In 1980 the Public Works Center Industrial Management Division completed preparation of a new standard organization for public works centers, which was published as a NAVFAC directive. The new organizational concept derived its basis from productivity improvement principles which were developed during a recent study of the production management system at public works centers.

The Industrial Management Division also reached a major goal in the development of the public works center automated data system by obtaining GSA approval for the Navy to procure 33 new minicomputers. The minicomputers would be connected for form a unified information system for all PWC functional areas.

In June 1980, a new management engineering branch was established under the PWC Industrial Management Division. The new branch provided on-site management engineering assistance to the public works centers.

Consultation Services for the Army

During July 1980, the PWC Industrial Management Division provided financial consultant services to the Army. The consultation included the review of information provided by the Financial Team, U.S. Army Engineer Activity, Capitol Area; and the Navy Industrial Fund budget and reimbursable rates; for the Army Real Property Maintenance Activity consultation consolidation.

Based upon this review, the consultants provided the Army with an independent opinion of the manpower and financial resources needed to effect the consolidation. The consultants also evaluated the Army's proposed strategy to complete minimum requirements (i.e. administrative controls and reporting systems) for the consolidation.

Management Information System for Facilities Inspections

The Industrial Management Division completed and installed a new facilities inspection management information system (FIMIS) for the public works centers in 1980. This task involved the development of a computer aided management information system and the writing of a comprehensive user manual. Specifically, the system uses computer support to compile, update, and maintain an inventory of assets at naval shore facilities that were covered under the facility inspection program. In addition, the FIMIS produced a mechanized inspection schedule, a monthly deficiency list, and an annual inspection summary report for each activity that the public works centers inspected. In October the new system generated its first annual inspection reports for these activities. The new reports prove to be far more accurate than those produced under the previous system and, as a consequence, had more credibility in supporting budget requests.

Public Works Center Management Workshop

The semiannual corporate management conferences were held in Pensacola, Florida, from 29 April to 1 May, and in Kansas City, Missouri, from 17 to 19 September 1980. The conferences brought together the commanding officers of the public works centers and PWC corporate executives from headquarters to discuss Command policies and review the management, financial status, work projections, and progress of the public works centers. The primary goal was to determine the most efficient and effective methods for the centers to accomplish their mission.

The Kansas City workshop occurred in conjunction with the 1980 International Public Works Congress and Equipment Show sponsored by the American Public Works Association (APWA), and two of the Command's centers participated in APWA technical sessions. The Public Works Center, Norfolk, Virginia; presented a talk entitled "Navy Quickline/Minor Maintenance System" at the Institute for Equipment Services; and the Public Works Center, Pearl Harbor, Hawaii; gave a presentation on "Systematic Real Property Maintenance" at the Institute for Buildings and Grounds.

Commerical and Industrial Training

From June to October 1979 NAVFAC participated in a Department of Defense tri-service training group which conducted a series of classes on OMB Circular A-76, Commercial/Industrial Type Activities and Cost Comparison Handbook.[14] Twenty-seven classes were conducted, and approximately 100 executive briefings were presented. In a four-month period the team trained 1,000 individuals in four-day courses and briefed another 3,000 executives. In early 1980, the Command presented four engineering field division sponsored classes on the handbook. The Command's classes trained an additional 200 people.

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[14]OMB stands for Office of Management and Budget.

Transfer of the Administration and Management of the Service Craft Overhaul Program

On 1 February 1980, the Assistant Commander for Public Works Centers assumed responsibility for the service craft overhaul program from the Assistant Commander for Maintenance and Transportation.[15] Significant changes in the management of this program accompanied the transfer.

The most important change related to the manner in which maintenance was financed. The centrally managed service craft maintenance program, which was supported by the Operations and Maintenance, Navy appropriation, would thereafter finance only the occasional major repairs and overhaul of service craft that were in the custody of Command activities. In accordance with NAVFAC Instruction 4780.5A and OPNAV Instruction 4780.5K, Command activities would be required to provide recurring maintenance and minor repairs for their own craft during intervals between major overhauls (i.e., overhauls that took place on an established and formalized schedule). Under this plan, the Assistant Commander for Public Works Centers would exercise direct management control both over annual recurring maintenance and repairs and over Operations and Maintenance, Navy funding for scheduled overhauls. In cooperation with the Assistant Commander for Public Works Centers, the CBC Command Management Division would continue to furnish management support for maintenance of four service craft located at the Naval Construction Battalion Center in Port Hueneme, California. The remaining service craft were located at public works centers. Funds for the repair and overhaul program would be distributed directly to the NAVFAC field activities that had custody of the service craft. Each engineering field division would receive a copy of pertinent documentation and correspondence so that effective technical assistance could be offered to the public works centers by the engineering field divisions.

The Assistant Commander for Public Works Centers also had responsibilities for the service craft inventory, overhaul schedules, maintenance and repair records, and the documentation of attendant costs. Lastly, his staff collected data on the utilization of service craft as prescribed by OPNAV Instruction 4780.5K entitled "Service Craft and Boats Accounting Report."

NAVFAC Public Works Training Center (NPWTC)

In March 1980, the Command changed the name of the NAVFAC Technical Training Center to the NAVFAC Public Works Training Center. In addition, the Command designated the Executive Officer of the Public Works Center, Norfolk as the executive agent for the Assistant Commander for Public Works. The executive agent provided program direction and policy guidance for NPWTC.

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[15] Service craft are small vessels, both motorized and unpowered, that perform various tasks in harbors. Tugboats, barges and floating cranes are examples.

CHAPTER IX

NAVY FAMILY HOUSING

The primary objective of the Family Housing Program was to assure that every Navy family could find adequate and affordable housing either on the base or in the private community. The Command was responsible for determining the requirements and standards for family housing. It also drew up the budget for the construction, improvement, maintenance, repair, and management of all Navy family housing and support facilities; and it was responsible for justifying the cost of this program to Congress. In addition, the Command administered a domestic and foreign leasing program and a housing referral service.

REORGANIZATION

Following a comprehensive study of NAVFAC family housing objectives, organization and efforts the Command established three divisions under the Assistant Commander for Family Housing. The Requirements and Acquisition Division was responsible for determining family housing and unaccompanied personnel housing requirements.[1] The Division conducted annual requirement surveys and was responsible for acquiring assets to satisfy requirements through new construction, programming acquisition of existing structures (primarily from other services), and leasing. In addition, the Division worked with other government agencies to insure that the Navy was using every available means to provide adequate housing for its personnel. The Operations and DOD Systems Management Division was responsible for the operation and financial management of the Navy family housing program. The Division was also responsible for administering the Housing Referral Program, planning and conducting Management Assistance Program Support (MAPS) visits, formulating the Navy family housing budget, and developing and maintaining the Navy family housing inventory. The Maintenance and Repair Division was responsible for maintenance, repair, improvement, and minor construction projects; and for the management of flag and installation command quarters, inadequate units, furniture, and equipment.

FAMILY HOUSING BUDGET

Fiscal Year 1981 Family Housing Management Account, Defense Budget

In January 1980 the fiscal year 1981 Family Housing Management Account, Defense budget was submitted for inclusion in the President's budget. The Navy portion of the $2.1 billion Defense Family Housing request was as follows:

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[1]Unaccompanied personnel housing was formerly called "bachelor" housing.

CHART 9-1 NAVY FAMILY HOUSING BUDGET SUBMISSION, FISCAL YEAR 1981

Program Element	Amount
Construction	$101,791,000
Operations and Maintenance	388,869,000
Debt Payment	31,160,000
TOTAL NAVY PROGRAM	$521,820,000

The fiscal year 1981 construction request included new family housing construction at the following locations:

CHART 9-2 NAVY FAMILY HOUSING CONSTRUCTION REQUESTS, FISCAL YEAR 1981

Location	Units
Marine Corps Air Station, Yuma, AZ	132
Defense Housing Complex, South Bay, San Francisco, CA (Naval Air Station, Moffett Field)	270
Marine Corps Air Station, El Toro, CA	300
Naval Complex, New London, CT	400
Naval Air Station, Brunswick, ME	62
Naval Complex, Norfolk, VA	232
TOTAL UNITS REQUESTED	1,396

The Navy construction request also included $8.7 million for improvements to existing units, $2.8 million for energy conservation investment projects, $2.0 million for minor construction projects, and $2.9 million for design and advance planning.

Except for the deletion of approximately $11 million for six solar energy projects, the fiscal year 1981 Military Construction budget passed House and Senate conferences intact.

Fiscal Year 1982 Family Housing Management Account, Defense Budget

In September 1980, the Navy submitted its portion of the fiscal year 1982 Family Housing Management Account, Defense budget to the Office of the Secretary of Defense for review. The request, by major account, was as follows:

CHART 9-3 FY 1982 NAVY FAMILY HOUSING BUDGET SUBMISSION

Funding Element	Amount
Construction	$105,080,000
Operations and Maintenance	396,356,000
Debt Payment	31,311,000
TOTAL NAVY PROGRAM	$532,747,000

The Navy construction request included $13.2 million for improvements to existing units, $8.65 million for energy conservation investment projects, $2.32 million for minor construction projects, $6.01 million for design and advance planning, and $74.82 million for construction of 940 new family housing units.

UTILIZATION

A comparison of housing utilization during the second half of fiscal year 1979 and the first half of fiscal year 1980 appears in the following chart:

CHART 9-4 FAMILY HOUSING UTILIZATION

Location and Fiscal Year	Total Units (Including Inactive)	Present (Inactive)	Moves Out	Percent Gross Occupancy
Continental U.S.				
Apr - Sep 1979	55,577	4,715	17,188	95.98
Oct - Mar 1980	55,755	5,207	12,494	95.98
U.S. Overseas & Possessions				
Apr - Sep 1979	12,583	453	3,663	97.11
Oct - Mar 1980	12.579	438	2,640	97.36
Foreign				
Apr - Sep 1979	9,223	221	3,239	92.92
Oct - Mar 1980	9,343	470	2,063	93.81
Worldwide				
Apr - Sep 1979	77,383	5,389	24,090	95.79
Oct - Mar 1979	77,677	6,115	17,197	95.94

ACCELERATED PRELIMINARY PLANNING

The Command completed a revision of its advance planning time-frame for new construction by accelerating the preliminary planning cycle by one full year. As of 5 June 1980 the Command assigned advance planning tasks to its field activities. These projects included 950 housing units at San Diego, Camp Pendleton, and Long Beach in California; and at Guantanamo Bay in Cuba.

MOBILE HOMES

In an attempt to deal with the extreme cost escalation encountered during the execution of the 1979 construction program, the Command began a detailed investigation into the use of mobile homes in place of conventionally constructed housing units. Part of this investigation included testing the use of mobile homes at the Naval Air Station, Fallon, Nevada. The Command completed the guidelines for the procurement of 66 double-wide mobile homes for emplacement at Fallon and scheduled the project for bidding during the fourth quarter of fiscal year 1980.

MASTER PLANNING

In order to meet large anticipated increases in housing requirements in those urban areas, Congress authorized the development of master plans for 1,300 housing units at Long Beach, California; 8,000 units at San Diego, California; and 8,000 units at Norfolk, Virginia.

UNACCOMPANIED PERSONNEL SURVEY

In 1979 the Navy Family Housing Program conducted a worldwide survey of unaccompanied personnel housing needs and assets to determine future requirements. In early 1980, representatives from the engineering field divisions spent a week at NAVFAC headquarters working on the survey. Each representative reviewed the survey data provided by their division to assure the accuracy and completeness of the submission. The effort resulted in a more precise determination of unaccompanied personnel requirements than had previously been available.

STANDARD HOUSING ORGANIZATION

During 1980, the Command was in the process of standardizing family housing management organizations at all Navy activities. Each housing office was to have a standardized organization. In 1980, the Command was executing this standardization process in two phases. The first called for a team to visit the selected activity and to determine what changes were necessary in its family housing management organization. The second phase involved the implementation of the changes.

The following activities completed phases I and/or II of the Standard Housing Organization process during 1980:

CHART 9-5 STANDARD HOUSING ORGANIZATION, 1980

Activity	EFD
PHASE I	
Pubic Works Center San Diego, CA	Western Division
Naval Submarine Base, Bangor, WA	Western Division
Naval Weapons Center, China Lake, CA	Western Division
Naval Support Activity, Mare Island, CA	Western Division
Naval Station, New York, NY	Northern Division
Naval Station, Oceana, VA	Atlantic Division
Naval Air Station, Corpus Christi, TX	Southern Division
Public Works Center, Yokosuka, Japan	Pacific Division
Naval Air Facility, Atsugi, Jampan	Pacific Division
Phase II	
Naval Air Station, Key West, FL	Southern Division
Naval Station, Mayport, FL	Southern Division
Naval Air Station, Jacksonville, FL	Southern Division
Naval Support Activity, New Orleans, LA	Southern Division
Public Works Center, Subic Bay, Philippines	Pacific Division
Public Works Center, San Diego, CA	Western Division

MANAGEMENT ASSISTANCE PROGRAM SUPPORT

The purpose of the Management Assistance Program was to provide timely advice in the operation and maintenance of family housing by personnel who were familiar with the latest housing concepts. Command headquarters and the engineering field divisions sent Management Assistance Program personnel to visit the housing offices of selected Navy activities. During 1980, engineering field division housing management personnel made Management Assistance Program Support (MAPS) visits to field activities collectively comprising 17% of the Navy's active family housing inventory.

FAMILY HOUSING SYSTEMS OFFICE (FHSO)

The Command became responsible for the establishment and operation of the DOD Family Housing Systems Office on 4 May 1979[2] The Family Housing Systems Office provided staff support in the area of family housing to the Deputy Assistant Secretary of Defense (Installations and Housing) (DASD, I&H). The Family Housing Systems Office became operational with a staff of seventeen during the first quarter of 1980.

One of the FHSO's first assignments was to develop contract specifications for a test of the feasibility of contracting out the management and maintenance of the DOD Family Housing Facility, Niagara, New York. Another of the FHSO's early assignments was to provide a single source document with uniform procedures and guidance for use by the entire DOD family housing network. The Command approved a contract for the development of this DOD housing manual and the FHSO was made responsible for the overall coordination effort. The contract was subsequently awarded to TRG, Washington Group, Inc. The contractor was to produce a comparison report that would identify all statements that conflicted with, duplicated, or were made obsolete by other documents provided as source material. This included all pertinent DOD directives, instructions, and interpretative memoranda.

In addition, the FHSO was to develop and administer a DOD housing training program which would include a management intern program and a housing management school for personnel of DOD component organizations.

On 28 October 1980, the Deputy Assistant Secretary of Defense (Installations and Housing) approved the FHSO's development plans and milestones for various major DASD (I&H) assignments.

During 1980, the FHSO was involved in acquisition actions and the development of a Family Housing Management Information System (FHMIS).

Acquisitions

The FHSO's role in the acquisition process was to 1) study the acquisition proposal, 2) interview the involved agencies to determine their respective positions, 3) evaluate the positions and any alternatives, and

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[2]The Family Housing Systems Office was placed under the NAVFAC Family Housing Program and was identified as the DOD Systems Management Branch in that organization.

4) make recommendations concerning inventory transfers, funding levels, staffing, and support to the DASD (I&H).

By October 1980, the FHSO had been involved in two major acquisitions. The first was the Navy's acquisition of housing considered excess by the Air Force at Lockport, New York. The second was the Navy's acquisition of Air Force housing at Westover, Massachusetts. In both instances, the FHSO, in conjunction with the involved services, developed proposals that upon acceptance by the DASD (I&H) allowed for a smooth transfer of inventory and management effort from the Air Force to the Navy.

Family Housing Management Information System (FHMIS)

The FHSO followed the DOD Life Cycle Management (LCM) policy in the development and implementation of a DOD-wide Family Housing Management Information System. Life Cycle Management was the management of a system from "cradle to grave"; i.e., it involved the initial statement of requirement for a system, its development and implementation, and necessary maintenance throughout its useful life.

LCM separated the development of automatic data processing systems into five well-defined phases, appointed a project manager to be responsible for the entire development, and required reviews to insure that changes in policy had not altered the requirement for the system. The LCM process required prototype testing to insure that an automatic data processing system operated successfully in one location prior to its full scale implementation. LCM also changed the design process. In the past, systems were developed in accordance with a government design. Under LCM the government stated the problem and private vendors responded competitively with the solutions. At the same time, the government investigated alternative in-house methods of accomplishment. The government then evaluated the proposals and selected the most efficient system.

The scope of this effort was long-term and complex in nature. The development and implementation of a DOD Family Housing Management Information System was not something that would occur overnight. Cooperation between all DOD component organizations and all levels of housing management would be necessary for effective development of this program.

To further development of the DOD Family Housing Management Information System, the Command awarded two contracts to Automated Business Service: one for programmer analyst support services, and the other for acquisition of a minicomputer. The FHSO would use the services contract to help formulate the information requirements of family housing managers at all Command levels and to aid in programming the minicomputer. The minicomputer, a Data General Eclipse C-350, would in turn be used to automate housing reports received by OSD, and provide a much needed analysis capability.

ENERGY

From fiscal year 1975 through fiscal year 1980, the Navy reduced energy consumption by 15 percent per gross square foot in Navy family housing. This reduction substantially exceeded the original goal of 10 percent.

During 1980 the Command updated and corrected the Defense Energy Information System II Baseline in accordance with OSD instructions. The baseline (in this case fiscal years 1975 energy consumption) was used as a benchmark against which to measure the reduction of energy consumption.

The Navy Family Housing Program Manager made a recommendation, which the Deputy Command for Facilities Management subsequently approved, to establish a NAVFAC team of representatives from the office of the Director of Programs and Comptroller, the Assistant Commander for Energy and Environment, and the Assistant Commander for Family Housing to study the causes of energy data problems at activities.

The Command's Southern Division prepared an energy conservation film (entitled NEAT: Navy Energy Awareness Team) which was refined and further developed by the Naval Personnel Research and Development Center (NPRDC), San Diego, California. The intent was to establish a program to show the film to school children in grades four to six at various Navy activities. The NPRDC was also writing and revising a new family housing energy conservation manual for the Command during 1980.

Family Housing Metering Test

The last quarter of 1979 marked the end of the two and one-half year long test to determine the feasibility of installing individual utility meters in military family housing. Although the final meter readings were scheduled to be taken in January 1980, the Command prepared most of the test report, due to Congress by 1 March 1980, during the last quarter of 1979.

The Naval Personnel Research and Development Center provided valuable assistance to the NAVFAC staff through its research into the modification of occupant energy consumption behavior and by providing technical writer support during the preparation of the report.

The completed report was submitted to Congress in February 1980. It stated that individual metering was possible, but would be very expensive in multi-family dwellings. Furthermore, energy ceilings or "norms" (which were established to provide a comparison with metered consumption) were only accurate to within plus or minus 15 percent. This was not precise enough for billing purposes. Although all ten test-sites utilized one central computer during the test, the report recommended that minicomputers would be the best alternative for full implementation.

Of the six alternatives evaluated, the only one which offered significant positive annual cash flow, as well as energy savings of 12 percent, involved major energy conservation facility improvements, some use of solar energy, and aggressive consumer education. Congressional response to the report was mixed. In sum, DOD recommended to Congress that metering not be pursued.

Solar Energy

The Command awarded a fiscal year 1979 project for 100 housing units at Ballston Spa, New York, in early 1980. The units were to have individual solar energy systems for hot water and heating.

Energy Conservation Opportunity Program (ECOP)

During 1980, the Command completed preliminary work on the Energy Conservation Opportunity Program. The purpose of the ECOP was to survey family housing Navy-wide in order to identify possible projects for the Energy Conservation Investment Program.

FISCAL YEAR 1979 IMPROVEMENT FUNDS

By 30 September 1980, the Command had obligated 100 percent of the funds appropriated for the fiscal year 1979 Energy Conservation Investment Program (ECIP). Approximately $1 million in regular improvements funds were also obligated for the ECIP. The Command retained about 2.6 percent of the total Improvement Program funds for contingencies.

HOUSING TRANSFERS

Coos Head, Oregon

The Office of the Secretary of Defense approved the transfer of 27 family housing units at North Bend, Oregon, from the Air Force to the Navy. The units were designated for the use of the Naval Facility at Coos Head, Oregon.

Westover Air Force Base

On 4 August 1980 the Deputy Assistant Secretary of Defense (Installations and Housing) approved the transfer of 313 active family housing units at Westover Air Force Base from the Air Force to the Navy. The transfer took effect on 1 October 1980. The Navy planned to operate the newly acquired units as a Defense Housing Complex. The DASD (I&H) recommended that 11 older, oversize Westover units be disposed of by September 1981. The DASD (I&H) also assigned responsibility for another 1,251 excess family housing units at the same location to the Navy, pending final disposition by the GSA. Four civilian personnel spaces were included in the transfer to provide administrative support. The DASD (I&H) requested that the Navy prepare the necessary acquisition report for the transfer, and that the Air Force issue an interim license to the Navy to operate the housing pending Title 10 clearance of the transfer.

REVISED PROCEDURES FOR INVESTIGATION OF AVAILABLE FAMILY HOUSING IN THE COMMUNITY

The Office of the Assistant Secretary of Defense (OASD) authorized a test of the Command's proposal to eliminate the requirement for newspaper advertising for existing available housing units prior to inviting construction bids for new housing units. The revised proposal required the activity housing manager, the facility commanding officer, and the engineering field division commanding officer to certify that a survey of the community serving the activity had been conducted, and that suitable housing meeting DOD specifications could not be located. OASD approved the test only for locations included in the fiscal year 1981 program. The Command anticipated that the earlier receipt of construction bids, resulting from the revised procedure, would save a considerable amount of time and several milion dollars.

INADEQUATE QUARTERS REPAIRS

Following an OSD directed reassessment, approximately $62 million was approved for whole-site repairs on 3,664 family housing units Navy-wide classified as inadequate quarters.[3] These repairs, most of which would be completed by the end of fiscal year 1981, would enhance the living conditions of eligible and ineligible personnel; and would greatly extend the economic life of these structures. The Command received favorable comments about the completed repairs from both newly assigned residents and local commands.

HOUSING REFERRAL SERVICE

From January 1980 through March 1981, 95,000 Navy personnel reported to the Housing Referral Service of the 75 Navy Housing Offices located in the continental U.S. and overseas.[4] Approximately 84,000 of these personnel subsequently requested Housing Referral Service assistance in order to locate suitable housing in the private community. Based upon activity reports, approximately 66,000, or 79 percent of the personnel who requested assistance, were housed through the Housing Referral Service Program. This was the highest percentage attained by the Navy since the inception of the referral program in 1967. In addition to housing personnel, the 140 employees assigned full-time to the Housing Referral Service dealt with 10,800 landlord/tenant complaints and obtained over 124,000 sale and rental listings.

FAMILY HOUSING MAINTENANCE SERVICE CONTRACTS COURSE

During 12-16 May 1980 the Naval School, Civil Engineer Corps Officers (CECOS), Port Hueneme, California, presented the first offering of a service contracts course tailored to family housing applications. The course tailoring and presentation was a combined effort of staff members from CECOS, the Navy Family Housing and Public Works programs, and the Atlantic Division. Fifty-three family housing management personnel from field activities, engineering field divisions, and NAVFAC headquarters learned how to successfully appply maintenance service contracts to family housing needs.

FAMILY HOUSING MANAGEMENT TRAINING

In early 1980 the Command completed the development of the new Family Housing Management Institute. During 3-15 August 1980 the Command gave the pilot course at the Naval Air Station, Jacksonville, Florida. Student evaluations and observer comments indicated that this pilot course was an unqualified success. The Command scheduled six courses for presentation during fiscal year 1981.

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[3]The Navy labels as "inadequate" any housing that simply lacks one or more convenience features considered standard in modern housing.

[4]Newly assigned personnel were required to report to the Housing Referral Service for counsel before entering into lease or rental agreements.

FURNISHINGS

Furniture Rescission Bill

On 8 July 1980 the President signed into law the rescission of fiscal year 1980 funds allocated for the procurement of furniture. This involved approximately $220 million from the departments and agencies of the entire federal government. This action did not significantly affect Navy Family Housing Management Account, Defense operations funds.

Furniture Freeze

The Office of Management and Budget lifted the freeze on the procurement of family housing furniture items on 2 October 1980. This action allowed agencies to purchase 100 percent of non-recurring items requested, but restricted recurring procurement to 50 percent of the justified requirements.

Carpet Maintenance Test

Part of the whole-site repair project underway at the Naval Air Station, Lemoore, California involved the installation of wall-to-wall carpeting as the primary floor covering. Because of significant problems with soil movement at this site, floor coverings with characteristics capable of concealing uneven floor surfaces were required. In 1980 the Command began testing the performance of carpeting and expanding vinyl in the housing units at Lemoore. Test data will be collected during the life of the carpeting and final test results will be forwarded to the Deputy Assistant Secretary of Defense (Installations and Housing).

CHAPTER X

MILITARY READINESS

The Naval Facilities Engineering Command was responsible for supporting the military readiness of the Naval Construction Force. To accomplish this mission, the Command provided financial and logistical assistance. Its duties included determining the material and equipment needs of construction battalions, managing items assigned under the Navy supply system, supporting military operational plans, developing mobilization plans to back up more general Navy plans, and managing and maintaining the advanced base functional component system.[1] Additional responsibilities included preparing and disseminating emergency plans to strengthen Navy plans, serving as "executive agent" for the Chief of Naval Operations on disaster preparedness, performing certain civil defense functions, and managing the construction battalion centers for the Naval Construction Force. Finally, the Command served as technical manager for the Reserve Program, which was composed of the Reserve Naval Construction Force and other Reserve Civil Engineer Corps officers and Seabees.

THE NAVAL CONSTRUCTION FORCE

Like other military units, the Naval Mobile Construction Battalions constantly practiced for their wartime mission. The construction battalions, however, trained in a unique fashion by building needed projects overseas.

The Navy emphasized Naval Construction Force and fleet readiness. Therefore, most Seabee projects were related to the construction and repair of operational facilities. During 1980 construction battalions deployed to Okinawa; Puerto Rico; Diego Garcia; Guam; and Rota, Spain. Details from these battalions were assigned to nearby sites to perform additional construction. Each battalion was also exposed to field training in order to enchance its combat skills.

In addition to the Mobile Construction Battalions, the Naval Construction Force included Amphibious Construction Battalions, Construction Battalion Maintenance Units, Construction Battalion Units, Underwater Construction Teams, Seabee Teams, and the State Department Naval Support Unit.

Amphibious Construction Battalions 1 and 2 operated under the Pacific and Atlantic Amphibious Force commanders, respectively, from home ports at Coronado, California, and Little Creek, Virginia. Both of the Amphibious Construction Battalions (PHIBCBs) devoted most of their time to fleet exercises and other training operations. Detachments of these two battalions served in the Pacific, Mediterranean, and Caribbean areas and were part of the fleet's amphibious ready groups that were prepared for amphibious assaults wherever and whenever necessary. The Command undertook extensive research and development

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[1] "Advanced base functional components" are pre-planned listings of facilities, equipment, material, and personnel required to perform specific missions at an advanced base.

to insure that the Amphibious Construction Battalions could meet their fleet and Marine support assignments in the future.

The first Construction Battalion Maintenance Units (CBMUs) were organized in the autumn of 1942. The Navy formed these units to maintain public works and public utilities; and to operate power plants, utility distribution systems, and transportation equipment at advanced naval operating bases. During 1980 only one of these units was in active service, Construction Battalion Maintenance Unit 302. CBMU 302 was permanently assigned to the Naval Base at Subic Bay in the Philippines.

The Construction Battalion Unit (CBU) program began in 1969. Each Construction Battalion Unit was staffed by 30 to 50 men and was organized and equipped along the lines of a regular battalion. To meet contingency situations, these units could be mobilized and combined either to establish new units or to augment existing ones. The program was initiated to provide worthwhile duty for Seabees stationed ashore. Sixteen Construction Battalion Units were on active duty in 1980.

In addition to training on construction projects and maintaining the Seabees' combat and disaster recovery readiness, the CBU's guided and supervised the efforts of non-construction Navy ratings to improve the sailors' living conditions ashore under the Self-Help and Shore Establishment Habitability Program. The projects to improve living conditions ranged from very simple bus shelters to large barracks complexes. Other Self-Help projects included improvements to housing, temporary lodgings, recreation parks, on-base parking, mobile-home parks, and recreation clubs.

The Navy took special care to ensure that the CBU's involved in Self-Help construction did not compete with private industry or other government organizations doing similar work. Although the program was expanded to allow CBU's to undertake maintenance, repair, and operational projects in addition to those related to recreation and welfare, the principle of Seabee non-competition with private industry, originally established by Admiral Ben Moreell, was still in effect.

In addition to the work performed by Construction Battalion Units, naval shore activities could improve their own bases under the Self-Help Program. At the end of every year the program underwent a review, and the Chief of Naval Operations awarded a "Bronze Hammer" to one unit in each of the following categories:

a. Bases with an enlisted strength of more than 1,000 persons and no CBU

b. Bases with an enlisted strength of more than 1,000 persons that did have a CBU

c. Bases with an enlisted strength of less than 1,000 persons and no CBU

d. Bases with an enlisted strength of less than 1,000 persons that did have a CBU

e. Special award--Any naval unit was eligible to compete for this award, including fleet units, reserve units, and naval community groups.

During 1980 the CNO announced the following winners for fiscal year 1979 in the respective categories:

1. Naval Air Station, Key West, Florida

2. Naval Amphibious Base, Coronado, California

3. Naval Weapons Support Center, Crane, Indiana

4. Naval Security Group Activity, Skaggs Island, California

5. Naval Security Group Activity, Misawa, Japan

As tension mounted in Southeast Asia during the 1960's, the Seabees were first assigned to the area in thirteen-man teams that were capable of performing a great variety of tasks. The Seabee Team represented a new concept for the Naval Construction Force. Each team consisted of a Civil Engineer Corps officer, eleven enlisted construction men, and a hospital corpsman. These compact units possessed unique capabilities never before assembled in such small and versatile groups. During the Vietnamese conflict, Seabee Teams devoted most of their attention to construction and civic action projects in South Vietnam and Thailand. After their withdrawal from Southeast Asia, the teams focused their efforts mainly on civic action projects. Sometimes called the Navy's "Peace Corps," the Seabee Teams sought to help the rural populations of new or underdeveloped countries help themselves by providing training, lending technical assistance, and performing actual construction jobs. Two Seabee Teams were deployed during 1980. One served on the island of Yap and the other on Palau in the Trust Territory of the Pacific Islands. In addition the Navy provided logistic support to Air Force and Army Civic Action Teams on Truk Island and Ponape Island, respectively.

Naval Construction Force Units Status

During 1980 there were three active Naval Construction Regiments: the Twentieth Naval Construction Regiment at the Naval Construction Battalion Center, Gulfport, Mississippi; the Thirtieth Naval Construction Regiment, located on Guam; and the Thirty-First Naval Construction Regiment at the Naval Construction Battalion Center, Port Hueneme, California. The remaining Naval Construction Force units active in 1980 consisted of eight Mobile Construction Battalions, two Amphibious Construction Battalions, two Underwater Construction Teams, two Seabee Teams, 16 Construction Battalion Units, and one Construction Battalion Maintenance Unit.

The Thirty-First Naval Construction Regiment was responsible for the operational control of the battalions that were located in Port Hueneme during their home port periods. These battalions were Naval Mobile Construction Battalions 3, 4, 5, and 40. This regiment also exercised direction over Underwater Construction Team 2. The Twentieth Naval Construction Regiment was responsible for the operational control of the battalions whose home port was in Gulfport. These battalions were Naval Mobile Construction Battalions 1, 62,

74 and 133. The Thirtieth Naval Construction Regiment, which was headquartered on Guam in the Mariana Islands, supervised the activities of construction battalions that were operating in the western Pacific Ocean. This regiment also exercised oversight for the Seabee Teams in the Trust Territory of the Pacific Islands. There was a detachment of the Thirtieth NCR stationed on Diego Garcia which was responsible for all construction and project planning on the island.

Reserves

In the 1980's the reserves were an important part of the Command's military readiness responsibilities. In his role as Chief of Civil Engineers, the Commander of the Naval Facilities Engineering Command acted as technical manager for two separate reserve programs--the Reserve Naval Construction Force (RNCF) and the Naval Reserve Facilities Engineering Program (FEP). The RNCF, which accounted for two-thirds of the battalions in the Naval Construction Force, trained to repair war damage and construct essential facilities at advanced bases to support the Navy and Marine Corps during national emergencies or mobilizations. The personnel of the RNCF held billets either in the reserve battalions of the First Reserve Naval Construction Brigade, or in the auxiliary units that reinforced the construction battalion centers, fleet Seabee staffs, and active-duty regiments in the continental United States.

During 1980 the First Reserve Naval Construction Brigade consisted of eight reserve regiments, which supervised the operations of 17 Reserve Naval Mobile Construction Battalions. The organization of the reserve battalions was identical to that of the active battalions and they were capable of working side by side with active battalions whenever necessary. Most reserve Seabees were skilled craftmen who were employed in the construction industry.

An innovative training program was the key to the reserve brigade's readiness. Reserve Seabees went to the same schools, received identical training, and were evaluated under the same standards as their active duty counterparts. One phase of their training included mount-out exercises and advanced base construction under tactical conditions.[2] Reserve Seabees also participated in exercises with active units. In conjunction with the staff of the Thirty-First Naval Construction Regiment, RNMCB 17 engaged in active-duty training by erecting, maintaining, and then disassembling a fleet hospital test module at Twentynine Palms, California.[3]

Each reserve battalion had a permanent drill site on an active military installation. This facility was the central training complex and headquarters for the battalion. The permanent drill site housed a "readiness support allowance," which consisted of approximately 10 percent of the battalion's mobilization assets and all of its personnel equipment. This equipment enabled the battalion to practice numerous Seabee operations and also gave it the capability to deploy an air detachment if necesesary. Five active-duty petty officers

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[2]A "mount-out exercise" is the rapid deployment of troops to simulate an emergency.

[3]For more information about the fleet hospital, see the 1979 Command History, pp. 71-72 and p. 137.

assigned to each drill site acted as advisors and instructors and provided maintenance and security.

Realistic active-duty training contributed to the overall preparation of the reserves. Both full reserve battalions and details from these battalions engaged in active-duty training at naval bases overseas. The details ranged in size from 20 to 89 men and went to such locations as Rota, Spain; Guantanamo Bay, Cuba; Roosevelt Roads and Vieques Island, Puerto Rico; and Midway Island. These deployments not only furnished concrete operational training, but they also produced needed construction for the fleet.

In addition, special capabilities broadened the scope of the reserve brigade's training program. The reserve battalions underwent construction training for operations in cold weather, desert, and jungle conditions. This training was important because the number of active-duty Seabees who possessed such skills was inadequate to meet possible mobilization needs.

Combining on-the-job training and community action projects, Seabee reservists exercised their talents on behalf of environmental, recreational, educational, and social programs throughout the nation. Participation in projects of this nature gave reserve Seabees a good opportunity to practice their construction skills while at the same time turning out needed and highly appreciated community facilities.

The other element of the Command's reserves was the Naval Reserve Facilities Engineering Program. The mission of this program was to furnish task-performing units that could be mobilized immediately in a national emergency. These units were trained to meet the most crucial needs at assigned NAVFAC activities and would supply a major source of skilled manpower for Command headquarters, the engineering field divisions, public works centers, and officer-in-charge-of-construction activities in event of a national crisis.

During their yearly active-duty training periods, reserve personnel supplemented the staffs of their parent activities while they functioned in their actual mobilization billets. The results were additional manpower for the shorthanded active staff and better trained reservists, who proved consistently enthusiastic about the chance to acquire mobilzation skills while simultaneously helping the Command. When they were on active duty, the reservists devised needed computer programs, prepared environmental and energy studies, and analyzed the validity of requests for urgent minor construction projects. All of these tasks and others they performed fell within the normal course of duty for active CEC officers. The Reserve Facilities Engineering Program proved effective in building a highly trained, responsive reserve force, fully capable of stepping in and filling out the Command's organization in a national emergency.

MATERIAL MANAGEMENT

The Command's Material Management Division administered the material management and supply programs at headquarters. The major responsibility of this division was to manage the Military Readiness Material Program, including Navy Other Procurement funds. It also provided direction to Command field activities in their application of material management and supply policy.

Through the POM process,[4] the Command programmed funds to continue procurements for the Amphibious Logistics System[5] and to commence the purchase of fleet hospitals, war-damage repair kits, and rapidly erectable fuel storage tanks. NAVFAC also programmed money to begin procuring cranes, motor vehicles, and similar equipment to remedy deficiencies in the pre-positioned war reserve stocks of the Reserve Cargo-Handling Battalions.[6] In addition, the Command requested funds for the following purposes:

a. Equip selected reserve units

b. Pre-position equipment for the Naval Construction Force in the European theater

c. Procure chemical, biological, and radiological warfare defense equipment

d. Organize the materials in the table of allowances for Mobile Construction Battalions so that they could be containerized quickly for shipment overseas[7]

e. Obtain and pre-position war reserve stocks to make ready for a possible NATO mobilization

f. Obtain pre-positioned war reserve stocks for Project Cyclone

g. Procure war reserve materials for Project Hurricane-Typhoon advanced base functional components[8]

h. Reduce inventories of over-age civil engineer support equipment (CESE), both in the fleet and in the shore establishment.[9]

CONSTRUCTION BATTALION CENTERS

In 1980 the Naval Construction Battalion Centers (CBCs) at Davisville, Rhode Island; Port Hueneme, California; and Gulfport, Mississippi, served as the primary logistic support bases for the Naval Construction Force. The

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[4]POM is an abbreviation for program objective memorandum. See Chapter V for a definition of this term.
[5]The Amphibious Logistics System is a plan for unloading materials quickly and efficiently in an amphibious landing.
[6]"'Pre-positioned' war reserve stocks" are reserves of supplies and equipment in good condition that are set aside for use in an emergency.
[7]The "table of allowances" is a list of the types of supplies and equipment available for use by a particular kind of naval unit. Each type of naval unit has its own table, and the contents are tailored to the functions it performs.
[8]Project Cyclone and Project Hurricane-Typhoon are special projects of the CNO which are designed to categorize supplies and materials needed under certain mobilization plans. See Footnote 1 for a definition of advanced base functional components.
[9]"Civil engineer support equipment" is automotive and construction equipment used by construction battalions in the course of their work.

centers provided technical, training, supply, administrative, and engineering support. They also furnished storage and port services to other activities of the armed forces and provided host support for various tenant activities.

In June, Seabees returned to the Construction Battalion Center at Davisville for the first time in six years when a reserve unit began two weeks of active-duty training there. More reserve units are expected to train at Davisville in the near future. During 1980, the Command also sold 850 acres of excess property at Davisville and at the Naval Air Station, Quonset Point to the State of Rhode Island. An additional 150 acres were transferred to the neighboring city of North Kingston, Rhode Island.

In November all three construction battalion centers participated in Operation Proud Spirit. Over 100 pieces of civil engineer support equipment were shipped by rail from Port Hueneme to Davisville. The exercise commenced on 12 November with the removal of the equipment from supply warehouses at Port Hueneme and ended with the delivery of the first items to Davisville on 1 December. This movement of equipment tested the abilities of the construction battalion centers, the Material Traffic Management Command, and the commercial railroad industry to react quickly in a mobilization.

READINESS PLANNING

During 1980 the Command's Readiness Planning Division continued development of equipment and material requirements for the repair of estimated war damage to facilities in hypothetical contingency operations. Plans for the rapid repair of airfield runways received special attention.

NAVFAC participated in two major command post exercises during 1980. One was a recovery-reconstitution exercise in which the Joint Resource Assessment Data Base Report Branch tested the Navy residual-capability reporting system.[10] This system was designed to report the ability of each military installation to perform its functions after a nuclear exchange. JADREP coordinators at every Navy and Marine Corps base in the world participated in the exercise by submitting reports to the Joint Chiefs of Staff. Copies of the reports went to the services and selected subordinate commanders.

The other major exercise was Proud Spirit 80, which was a full mobilization exercise similar to Nifty Nugget 78.[11] Command headquarters, the three construction Battalion Centers, and the Atlantic Division took part in this exercise for two weeks in November. The participants learned a good deal about the Navy's capacity to mobilize the reserve Seabee battalions. A special aspect of the exercise was the actual rail shipment of 103 pieces of construction equipment from CBC Port Hueneme to CBC Davisville.

Finally, during May and October the Readiness Planning Division took part in mobilization and communications exercises with representatives from other systems commands. The purpose of these exercises was to test the readiness of

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[10]A Joint Resource Assessment Data Base Report is usually abbreviated as a "JADREP."

[11]Nifty Nugget 78 is discussed on page 149 of the 1978 Command History.

the emergency sites which the Navy had selected for relocating Command headquarters under certain mobilization conditions.

In the late 1970's various research and development projects were conducted to improve Naval Construction Force operations. Most of them focused on identifying deficiencies and making improvements in the equipment and material used by the Seabees. Sometimes the projects also designed completely new equipment to meet changed functions. In 1980 the Command decided to consolidate these research and development projects under the Advanced Base Mobility Plan, a program which examined all aspects of building advanced bases. One important result of the consolidation was that for the first time all NCF exploratory development projects were organized into one document. This detailed planning paper supplied a means for the Naval Construction Force to identify long-range goals and to plan future research and development needs.

For some years prior to 1980, the Command had utilized information from chemical and biological warfare defense manuals, that had originally been published by the Army, in composing technical guidance for the Naval Shore Establishment. Rather than distributing the entire Army manuals, however, the command has been excerpting the information applicable to Navy and compiling the material into its own manual. This system proved to be complicated because the Army was constantly revising its manuals, and the command had trouble keeping up the pace. After holding discussions with the Army, NAVFAC decided to eliminate the Navy manual and to let the Army distribute its newly published materials directly to Navy users. The revised procedure was less complicated and would save money.

APPENDIX A

NAVAL CONSTRUCTION FORCE UNITS ACTIVE DURING 1980

Naval Construction Regiments (NCR's)

Twentieth NCR	Gulfport, Mississippi
Thirtieth NCR	Guam, Mariana Islands
Thirty-First NCR	Port Hueneme, California

Amphibious Construction Battalions (PHIBCB's)

PHIBCB 1	Coronado, California
PHIBCB 2	Little Creek, Norfolk, Virginia

Naval Mobile Construction Battalions (NMCB's)

NMCB 1	January - September 1980	Puerto Rico, U.S.A.
	September - December 1980	Gulfport, Mississippi
NMCB 3		
Blue	January - August 1980	Port Hueneme, California
	August - December 1980	Okinawa Japan
Gold	January - August 1980	Okinawa, Japan
	August - December 1980	Port Hueneme, California
NMCB 4	January - May 1980	Guam, Mariana Islands
	May - November 1980	Port Hueneme, California
	November - December 1980	Rota, Spain
NMCB 5	January - May 1980	Port Hueneme, California
	May - December 1980	Guam, Mariana Islands
NMCB 40	January - July 1980	Port Hueneme, California
	July - December 1980	Diego Garcia, BIOT

NMCB 62	January - March 1980	Rota, Spain
	March - September 1980	Gulfport, Mississippi
	September - December 1980	Puerto Rico, U.S.A.
NMCB 74	January - March 1980	Gulfport, Mississippi
	March - November 1980	Rota, Spain
	November - December 1980	Gulfport, Mississippi
NMCB 133	January - July 1980	Diego Garcia, BIOT
	July - December 1980	Gulfport, Mississippi

Construction Battalion Maintenance Units (CBMU's)

CBMU 302	The Philippines
	Diego Garcia, BIOT

Construction Battalion Units (CBU's)

CBU 401	Naval Training Center Great Lakes, Illinois
CBU 402	Naval Air Station Pensacola, Florida
CBU 403	U.S. Naval Academy Annapolis, Maryland
CBU 404	Naval Air Station Memphis, Tennessee
CBU 405	Naval Air Station, Miramar San Diego, California
CBU 406	Naval Air Station Lemoore, California
CBU 407	Naval Air Station Corpus Christi, Texas

RESERVE NAVAL CONSTRUCTION FORCE STATUS FOR 1980

Reserve Naval Construction Brigades

First Reserve Naval Construction Brigade	Tampa, Florida	October 1979 - December 1980

Reserve Naval Construction Regiments (RNCR's)

First Reserve NCR	Los Alamitos, California
Second Reserve NCR	Great Lakes, Illinois
Third Reserve NCR	Atlanta, Georgia
Fifth Reserve NCR	Seattle, Washington
Sixth Reserve NCR	Glenview, Illinois
Seventh Reserve NCR	Providence, Rhode Island
Eighth Reserve NCR	Washington, DC
Ninth Reserve NCR	Dallas, Texas

Reserve Naval Mobile Construction Battalions (RNMCB's

Permanent Drill Site Locations

RNMCB 2	Naval Station, Treasure Island, San Francisco, California
RNMCB 12	Naval Construction Battalion Center, Davisville, Rhode Island
RNMCB 13	Camp Smith, Peekskill, New York
RNMCB 14	Naval Air Station, Jacksonville, Florida
RNMCB 15	Richards Gebaur Air Force Base, Grandview, Missouri
RNMCB 16	Naval Air Station Los Alamitos, California
RNMCB 17	Naval Construction Battalion Center, Port Hueneme, California
RNMCB 18	Naval Air Station, Seattle, Washington
RNMCB 20	Rickenbacker Air Force Base, Columbus, Ohio

RNMCB 21	Naval Air Station, Lakehurst, New Jersey
RNMCB 22	Naval Air Station, Dallas, Texas
RNMCB 23	Fort Belvoir, Virginia
RNMCB 24	Redstone Arsenal, Huntsville, Alabama
RNMCB 25	Naval Air Station, Great Lakes, Illinois
RNMCB 27	Naval Air Station, Brunswick, Maine
RNMCB 28	Barksdale Air Force Base, Shreveport, Louisiana
CBU 410	Naval Air Station Jacksonville, Florida
CBU 411	Naval Station Norfolk, Virginia
CBU 412	Naval Station Charleston, South Carolina
CBU 413	Naval Station Charleston, South Carolina
CBU 414	Naval Submarine Base New London, Connecticut
CBU 415	Naval Air Station Virginia Beach, Virginia
CBU 416	Naval Air Station Alameda, California
CBU 418	Naval Submarine Base, Bangor Bremerton, Washington

Underwater Construction Teams (UCT's)

UCT 1	Little Creek, Norfolk, Virginia
UCT 2	Port Hueneme, California

Seabee Teams

Yap		Palau	
4011	January - May 1980	0421	January - May 1980
0114	January - September 1980	0525	May - December 1980
6211	September - December 1980		

NAVAL CONSTRUCTION FORCE AWARDS ANNOUNCED DURING 1980

Calendar Year 1979 Marvin Shields Award	EO2 Joel L.Turnham, NMCB 5
Fiscal Year 1980 Atlantic Fleet Best-of-Type	NMCB 133
Fiscal Year 1980 Pacific Fleet Best-of-Type	NMCB 3
Fiscal Year 1980 Peltier Award	NMCB 133
Fiscal Year 1980 RADM John R. Perry Award	RNMCB 24